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THE REGULATION OF GASTRIC EMPTYING.*

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Accurate knowledge of the motor activities of the stomach began with the classical contributions of Cannon[1] who made the first careful X-ray studies of gastric function in animals and man. His description of the movements of the stomach and intestines has not been greatly extended or modified by later work. By demonstrating the fact that the gastric emptying time is different for the different types of food he proved the existence of a mechanism for regulating the emptying of the stomach. Carbohydrate food, he found, leaves the stomach rapidly, fat slowly and protein food at an intermediate rate.

Cannon's theories and observations have furnished the stimulus and the background of facts for most of the modern research along these lines. His acid control theory, in particular, has prompted a great deal of research, including much of our own. We propose in this paper to correlate the results of these and related studies.

The acid control theory is too well known to require lengthy exposition here. Briefly, it may be described as comprising four propositions which we shall discuss in order as follows: 1. Acid in the stomach causes reflex relaxation of the pyloric sphincter. 2. Acid in the duodenum causes reflex closure of the pylorus. 3. The effective stimulus for the regulation of gastric emptying is hydrochloric acid. 4. The pyloric sphincter is the active agent in accomplishing the regulation.

1. The effect of acid in the stomach has been investigated by McClure, Reynolds and Schwartz,[2] Carlson and Litt,[3] McCann,[4] McSwiney and Pyrah,[5] Mogan and Thomas,[6] and others. The results have not supported the view that the acid which appears in the pyloric antrum about the time that the first chyme enters the duodenum is responsible for opening the pylorus. It has not been possible to demonstrate an acid reflex from the stomach affecting the pyloric sphincter.

2. On the other hand, acid in the duodenum profoundly affects the pylorus. Carlson and Litt[3] observed contraction of the pyloric sphincter in anesthetized animals when strong solutions of HCl or other irritants were placed in the duodenum. Their observation was confirmed by Mogan and Thomas[6] and by Thomas, Crider and Mogan.[7] The latter found that anesthesia or vagotomy augments the reflex contraction of the sphincter, and that in conscious, intact animals it lasts but a short time and is followed by relaxation. The relaxation phase of the response is the more prolonged. They were unable to demonstrate a sustained contraction of the sphincter, caused by HCl in the duodenum. A sustained contraction is required by the acid control theory which was not, therefore, supported by these observations.

However, the influence of acid in the duodenum on the pylorus has received more attention than its importance warrants. Before it can be assumed that it normally controls gastric evacuation through its effect on the pylorus it is necessary to show that HCl regularly reaches the duodenum in great enough concentration to act as a stimulus. This has never been done; on the contrary, the available evidence points to the opposite conclusion. Thomas, Crider and Mogan[7] found that strong acid in the duodenum not only causes a temporary contraction of the pyloric sphincter but at the same time inhibits gastric peristalsis. Comparing reflex inhibition of peristalsis with reflex closure of the pylorus due

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to the same type of stimulus they found that the former occurred more readily than the latter, i. e. it could be produced with a smaller amount of acid in the duodenum. They concluded that duodenal acidity could not, under the circumstances, reach the level necessary to excite closure of the pylorus; before it could do so it would inhibit gastric peristalsis so that no more acid would be driven from the stomach. Experimental analysis has proved this reasoning faulty only to the extent that strong acid may escape from the stomach before the inhibitory reflex has had time to become effective; once the reflex is established it regulates the exit of acid to the extent anticipated.

3. More recent experiments, not yet reported, indicate that the degree of acidity required even to inhibit gastric peristalsis may be attained in the duodenum only in exceptional circumstances. The maximum acidity of the mixed duodenal contents observed in dogs on a diet of lean meat is near pH 3.6, whereas the threshold for gastric inhibition is in the neighborhood of pH 2.0 (and for closure of the pylorus, presumably less, indicating more acid). If the food consists of bread (carbohydrate) or fat, the duodenal contents are even less acid than after a meal of meat (Thomas and Crider[8]).

Fauley and Ivy[9] found that operations designed to increase the concentration of acid in the duodenum did not slow the emptying of the stomach. They diverted from the duodenum the pancreatic juice which is mainly responsible for neutralizing the acid chyme as it comes from the stomach. Since the stomachs of their operated animals emptied in less time than required normally, it is evident that the acidity of the duodenum can be considerably increased without attaining the concentration required to close the pylorus or inhibit gastric motility.

4. The assumed importance of the pylorus as a regulator of gastric emptying remains to be considered. There is reason to believe that the pylorus has some part in determining the initial emptying time of the stomach and possibly some influence on the rate of emptying in certain phases of digestion, but it has been abundantly demonstrated that the total time required for the stomach to empty itself of a given amount of material does not depend on the presence of an intact pyloric sphincter. Von Mering,[10] Gianturco,[11] Chrisler and Van Liere,[12] Ravdin,[13] and others have found that pyloroplasty, pylorectomy, gastroenterostomy and similar operations do not alter the total emptying time of the stomach. In a study recently reported, we found that the emptying time of the dog's stomach for normal salt solution, HCl, dextrose, fat or alcohol was not shortened by the presence in the pylorus of an open tube which effectively precented closure of the pyloric outlet (Crider and Thomas[14]).

Since recent experimental work has failed to support any substantial part of the acid control theory, a new theory is needed. In 1931, one of us[15] attempted to describe the mechanism that regulates gastric emptying in terms of the facts that were known at that time. We were inclined then, more than now, to agree with those who attribute an important regulatory influence to HCl. Recently acquired facts make it possible to describe more fully and with greater confidence some features of the regulatory apparatus that were merely suggested in 1931.

An adequate theory of the regulation of gastric emptying must take into account not only the pyloric sphincter but also such other means as are available for regulating the exit of chyme from the stomach. These are variations in the tone of the gastric muscle and in the peristaltic activity of the pyloric antrum. Although the pressure within the duodenum may offer a resistance to the entrance of gastric chyme and is, therefore, a potential factor in the regulation of gastric emptying, it has received little study; so far as we know at present, it does not undergo variations associated with differences in gastric emptying time.

In recent years the greatest advance has been made in the understanding of the mechanisms which regulate gastric tone and peristalsis. Edelmann,[16] and, later, Cannon[1] noted that when fat was mixed with the food the gastric peristaltic waves were slow and feeble. This observation has been confirmed many times since. Recently a number of investigators (see Gray, Bradley and Ivy[17]) have reported that the inhibitory effect of fat, which influences gastric secretion as well as peristalsis, is due to the presence in the blood of a chalone (chemical inhibitor) liberated from the duodenum and upper intestine when fat is present. This substance has been called enterogastrone.

Quigley and Phelps[18] have shown that the same or a similar substance is liberated also by the

presence of dextrose and other sugars in the intestine with consequent inhibition of gastric motility. Most of their experiments were done with strong solutions, so that their results were in part due to the hypertonicity of the material, but some effect was obtained with isotonic solutions. Crider and Thomas[14] found that isotonic glucose solution delays gastric emptying. Glucose in isotonic solution is a much less effective stimulus than fat and is about equivalent to N/20 HCl.

Hydrochloric acid, hypertonic salt solutions, alcohol and even chemically inert materials which act only mechanically, inhibit gastric peristalsis when present in adequate amounts in the duodenum (Thomas, Crider and Mogan[7]). The inhibition is the result of a reflex (the "enterogastric reflex", Thomas and Mogan[19]), which, for the chemical stimuli at least, is mediated almost entirely by the vagus nerves. Lalich, Meek and Herrin[20] have proved that mechanical stimuli may bring about gastric inhibition through the sympathetic innervation as well, but the vagus mechanism was found to be the more responsive.

Only last year we learned that the products of protein digestion are capable of exerting a profound inhibitory effect on gastric motility when present in the duodenum (Thomas and Crider[21]). Like HCl and certain other chemical stimuli, these substances owe their activity to their ability to excite the vagus inhibitory apparatus. Our study of this phenomenon is incomplete and its relative importance not yet determined, but it appears to us at present to represent one of the major influences in the regulation of gastric emptying.

The significance of all these observations becomes more evident when the inhibitory effects are compared quantitatively. Fat is the most potent stimulus among the food materials. Twenty cc. of olive oil in the duodenum will stop gastric motor activity for half an hour at the least and often for a much longer time. A similar quantity of a typical protein digest (5 per cent Witte's peptone) will stop gastric peristalsis for from five to ten minutes after being placed in the duodenum. Less concentrated solutions or smaller quantities may merely reduce the force of the peristaltic contractions without interrupting their rhythm. Isotonic glucose is the weakest stimulus of the three. In 20 cc. quantities it has no detectible effect on digestive peristalsis, but when the whole gastric content consists of such a solution the emptying is delayed appreciably when compared with that of inert material such as isotonic salt solution. It will be recalled that the gastric emptying times of the three foodstuffs differ in this same order.

The slow emptying of fat from the stomach is generally attributed to its inhibitory effect on gastric peristalsis. The evidence that the other foods have a similar action suggests that their emptying may be regulated in the same way. The hypothesis seems warranted that in so far as gastric emptying is regulated by means of reflexes or humoral agents arising in the intestine, the stimuli are generally the food materials themselves or the products of their digestion, and not HCl. Since the food products in the intestine affect gastric peristalsis and, so far as we know, do not influence the pylorus, this hypothesis will explain why it has not been possible to demonstrate any decrease in the gastric emptying time following removal of the pylorus.

The mechanism suggested has certain obvious advantages over one dependent on the concentration of HCl in the intestine. The secretion of acid is subject to a variety of influences, some of which are not directly concerned with digestion. In some persons it is not secreted at all. The food products are always present in quantities directly related to the rate of gastric emptying. Since the function of the regulatory mechanism is, presumably, to prevent overloading the intestine, it seems desirable that it should react to the materials with which the intestine may be overloaded.

Nevertheless, the well-known reflex responses to HCl in the intestine have an important function The duodenum is not adapted to a highly acid content. Since it is directly connected with an organ capable of secreting HCl in concentrations up to 0.6 per cent, some adaptation for its protection is essential. Acid in adequate concentration is a potent stimulus for the enterogastric reflex and for reflex closure of the pylorus. Effective concentrations may appear in the duodenum occasionally under normal conditions; for example, after a dog has been fed raw meat gastric juice is apparently secreted faster than it can be utilized in the stomach and may enter the intestine in considerable quantity in an almost pure state. According to Ivy[22] similar conditions arise in man following a meal. Under

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such circumstances, there may be temporary closure of the pylorus; there generally is some degree of gastric inhibition. These are followed by antiperistalsis in the duodenum and regurgitation (Ivy[22]). The regurgitation of strong acid from the duodenum is doubtless associated with the secondary relaxation of the pyloric sphincter which we have mentioned previously. These conditions continue for only a few minutes after the secretion starts; presently the buffering action of the protein and the products of its digestion reduces the acidity, and some other mechanism must be relied on to regulate the emptying.

So far only the effects of stimuli arising in the intestine have been considered. It is generally believed that the condition of the food within the stomach influences the rate of gastric emptying. Cannon[1] observed that gross solid particles failed to pass the pylorus and were driven back into the body of the stomach by antiperistaltic movements. McCann[4] has submitted evidence tending to show that undigested food, particularly protein, in the stomach delays gastric emptying by closing the pylorus and increasing the tone of the pyloric antrum as a whole.

Wilson, Dickson and Singleton[23] find that gastric emptying begins as soon as the gastric contents have had time to reach the pylorus; the time required depends in part on the consistency of the food. The initial emptying, and perhaps also the rate of emptying in the early stages of digestion, depends more on the chemical and mechanical nature of the gastric contents than on stimuli from the duodenum. It is not probable, however, that these factors commonly determine the total emptying time. This time is too nearly uniform for a given type of food to be determined by such variable circumstances.

Nevertheless, these factors cannot be neglected in a consideration of gastric emptying, particularly when we are attempting to evaluate the importance of the pylorus. The available evidence indicates that the tone of the pyloric antrum, including the sphincter, is a factor in the control of initial emptying. The antrum and sphincter are probably responsible also for any further influence which conditions within the stomach may have on the emptying rate.

SUMMARY

1. Cannon's acid control theory is stated to be no longer tenable because (a) the initial opening of the pylorus does not depend on the presence of acid in the stomach, (b) acid seldom reaches the duodenum in concentrations adequate to close the pylorus or to inhibit gastric peristalsis, (c) operations which increase the acidity of the duodenal contents do not shorten the gastric emptying time, and (d) surgical removal of the pylorus or experimental interference with pyloric function does not shorten the gastric emptying time.

2. Each of the major foodstuffs or the products of their digestion, when present in the duodenum, has some power to inhibit gastric peristalsis. The gastric emptying times of the three classes of food vary in the same order as the degree of gastric inhibition which they produce.

3. It is suggested that the regulation of gastric emptying, in so far as it depends on duodenal stimulation, is accomplished by the action in the duodenum of the food materials or the products of their digestion and not ordinarily by HCl.

4. Other factors in the regulation of gastric emptying are discussed.

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DEFICIENCY OF SOLAR RADIATION AND DEFICIENCY OF IODINE AS FACTORS IN THE DISTRIBUTION OF SIMPLE GOITER IN THE UNITED STATES.*

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In a former paper there was presented evidence of a causal relationship between deficiency of solar radiation and increased prevalence of endemic goiter.[1] The measure of solar radiation used for the United States was the percentage of the possible sunshine during the months of December, January and February. The index of goiter endemicity was the incidence in men in the third decade, by states, as determined by the United States Draft Board.

A more critical comparison is here undertaken by a refinement in both standards. The index of solar energy is arrived at by taking into account for the months mentioned, in addition to the percentage of the possible sunshine, the latitude (angle of incidence of the sun's rays) and humidity, as described in another paper.[2]† The geographic areas of goiter incidence used are the "urban areas" in the Draft Board's report. The results are shown in table 1 and chart 1.

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†The radiation index is calculated by dividing by 3 the sum of the angle of incidence of the sun's rays (66° 30' minus latitude equals the minimum seasonal angle) the percentage of possible sunshine, and 100 minus the p. m. relative humidity, mean.

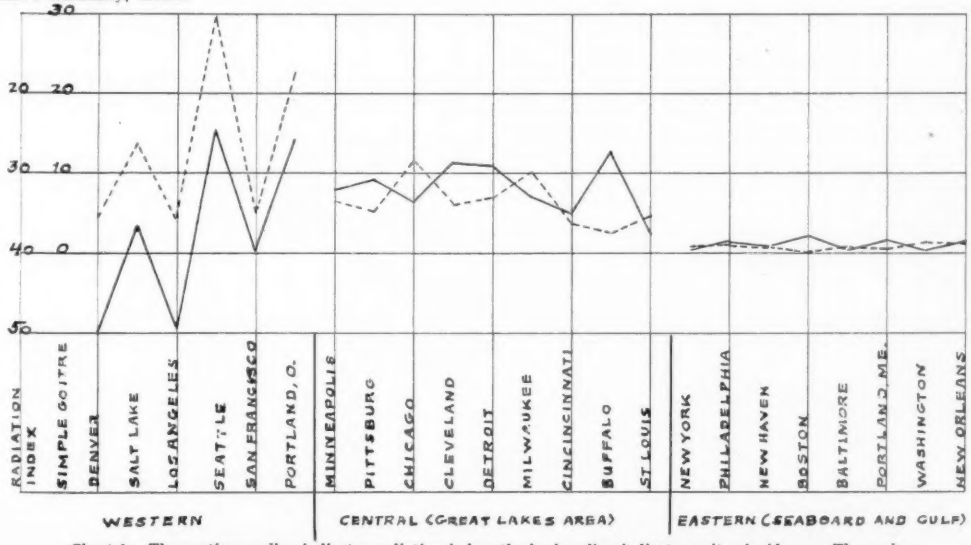

Chart 1.—The continuous line indicates radiation index, the broken line indicates goiter incidence. The scale for radiation index is reversed to make a low index comparable with height on the scale of goiter incidence. A relationship of cause and effect appears to be shown, with an incidence of goiter in the Western section somewhat higher in proportion to deficiency of radiation than in the Central and Eastern sections. Iodine is not taken into account in this chart. The Central section, especially Buffalo, N. Y., suggests the operation of an "x" factor, possibly iodine. See chart 2.

TABLE 1.—RADIATION INDEX AND GOITER

Draft Board Section	City	Altitude (feet)	Per Cent Urban	Simple Goiter per 1000 Men	Radiation Index
	Western				
Col. 5	Denver	5292	100.	4.80	49.7
Utah 2	Salt Lake City	4408	60.6	13.84	36.7
Cal. 4	Los Angeles	361	100.	4.09	49.3
Wash. 2	Seattle	248	68.1	29.85	24.3
Cal. 5	San Francisco	206	100.	5.06	39.7
Oreg. 1	Portland, Ore.	57	56.9	22.51	26.
	Central				
Minn. 4	Minneapolis	918	93.8	6.58	32.
Penn. 7	Pittsburg	842	70.4	5.21	30.7
Ill. 5	Chicago	824	100.	11.51	33.7
Ohio 1	Cleveland	762	85.3	6.05	28.7
Mich. 4	Detroit	730	100.	6.90	29.
Wis. 3	Milwaukee	681	90.9	10.13	33.
Ohio 4	Cincinnati	628	100.	3.71	35.
N. Y. 6	Buffalo	600	100.	2.36	27.3
Mo. 4	St. Louis	567	100.	4.54	37.7
	Eastern and Gulf				
N. Y. 2	New York	314	100.	0.76	39.7
Penn. 1	Philadelphia	156	100.	1.11	38.3
Conn. 2	New Haven	127	96.1	0.95	39.
Mass. 4	Boston	124	100.	0.18	38.
Md. 1	Baltimore	115	82.	0.55	39.7
Me. 3	Portland, Me.	99	64.2	0.66	38.3
D. C.	Washington, D.C.	75	100.	1.47	39.7
La. 2	New Orleans	51	100.	1.19	38.7

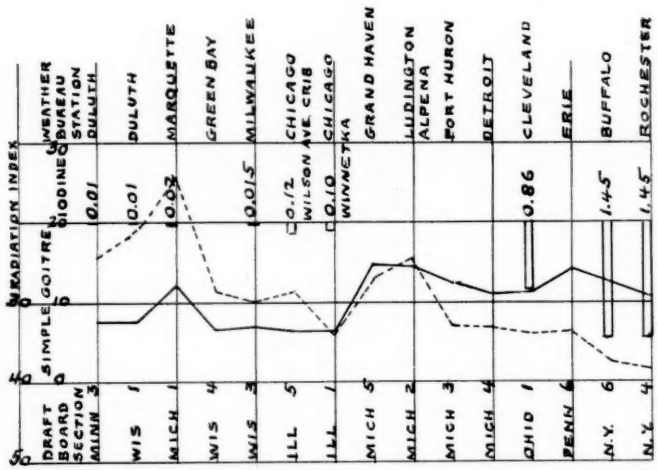

Chart 2.—The lines have the same significance as in chart 1. The iodine content of water is shown by vertical columns, which when very low become mere dashes. The names of cities above indicate the location of the Weather Bureau station within the corresponding Draft Board section shown below. The large increase in iodine content of the water of the Great Lakes from west to east appears to represent a factor which more than offsets the slight increase in deficiency of radiation.

TABLE 2.—RADIATION INDEX, GOITER AND IODINE CONTENT OF WATER

Draft Board Section	Per Cent Urban	Simple Goiter per 1000 Men	City of Water Analysis	Lake	Iodine parts per billion	Radiation Index
Minn. 3	61.7	15.71	Duluth	Superior	0.01	32.3
Wis. 1	26.4	18.95	Duluth	Superior	0.01	32.3
Mich. 1	40.3	25.62	Marquette	Superior	0.02	28.0
Wis. 4	45.5	11.52	Green Bay	--------	----	33.3
Wis. 3	90.9	10.13	Milwaukee	Michigan	0.015	33.0
Ill. 5	100.	11.51	Chicago (1)	Michigan	0.12	33.7
Ill. 1	63.5	6.02	Winnetka	Michigan	0.10	33.7 (2)
Mich. 5	27.2	13.05	Grand Haven	--------	----	25.3
Mich. 2	33.6	15.15	Ludington			
			Alpena	--------	----	25.4
Mich. 3	33.6	7.13	Port Huron	--------	----	27.7
Mich. 4	100.	6.90	Detroit	--------	----	29.0
Ohio 1	85.3	6.05	Cleveland	Erie	0.86	28.7
Penn. 6	40.5	6.40	Erie	--------	----	25.9
N. Y. 6	100.	2.36	Toronto	Ontario	1.45	27.3 (3)
N. Y. 4	61.7	1.79	Toronto	Ontario	1.45 (4)	29.1 (5)

1. Wilson Ave. Crib. The iodine content of Lake Michigan water at the 68th St. Crib was 0.67 (McClendon).
2. Chicago.
3. Buffalo.
4. Hancock Lake, 1.07.
5. Rochester, N. Y.

In the previous paper on the prevalence of endemic goiter it was noted that in New Zealand, while the iodine content of the soil appeared to be roughly in proportion to solar radiation, yet in an area of low iodine content of the soil, relatively great solar radiation tends to decrease the prevalence of goiter. In this study, the relatively low incidence of goiter at Buffalo in the State of New York, as shown in chart 1, suggested the comparison shown in table 2, chart 2. In this chart it is seen that the iodine content of the water of the Great Lakes as determined by McClendon[3] increases in the direction of flow from west to east, and that with the increase there is a decrease in the incidence of goiter in the age and sex group under consideration. This decrease is both absolute and in relation to the index of solar radiation.

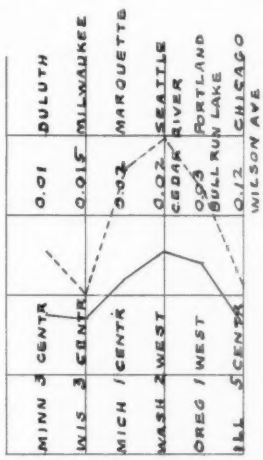

Chart 3.—The lines have the same significance as in charts 1 and 2. All of the water analyses were low in iodine content. The relationship between radiation index and goiter shows no considerable difference when the four central areas are compared with the two western areas, but shows what would seem to be a significant influence of deficiency of radiation in the causation of goiter in areas where iodine of the water supply is low.

Comparison of the western section of the country

TABLE 3.—RADIATION INDEX AND GOITER IN CENTRAL AND WESTERN SECTIONS WITH LOW IODINE CONTENT OF WATER

Draft Board Section C, Central W, Western	Per cent Urban	Simple Goiter per 1000 Men	City of Water Analysis	Source of Water Analyzed	Iodine Parts per Billion	Radiation Index
Minn. 3 C	61.7	15.71	Duluth	L. Superior	0.01	32.3
Wis. 3 C	90.9	10.13	Milwaukee	L. Michigan	0.015	33.0
Mich. 1 C	40.3	25.62	Marquette	L. Superior	0.02	28.0
Wash. 2 W	68.1	29.85	Seattle	Cedar River	0.02	24.3
Oreg. 1 W	56.9	22.51	Portland	Bull Run L.	0.03	26.0
Ill. 5 C	100.	11.51	Chicago	L. Michigan	0.12	33.7

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with the central and eastern sections shows, in general, a tendency to incidence of goiter in the West somewhat high in proportion to the radiation index. However, in areas of definitely low iodine content of water, as shown in chart 3, no differentiation is seen in the comparison of western and central areas, with respect to the relation of prevalence of goiter and the radiation index.

SUMMARY AND CONCLUSION

Further and more critical evidence is presented to show that both deficiency of iodine content of water and deficiency of solar radiation tend to increased prevalence of goiter.

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PRESENT DAY TRENDS IN THYROID SURGERY.*

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I am grateful to your President for the invitation to come down and address the Seaboard Medical Association. Doctor Bass very kindly asked me to talk on any subject I might choose and, since thyroid surgery has been my particular hobby for some time, I should like to outline very briefly some of the current trends in this field. It is obviously impossible to even begin to cover this subject in a short paper. I am also well aware of the fact that if one tries to run rapidly through a great many problems, the result is usually a disordered jumble, and of no especial value. What I would like to do is to touch briefly on a few "high spots" and then show some lantern slides of illustrative cases.

It seems to me worthwhile to stop occasionally, in our work, and "take inventory", in order to see what things we are doing differently than a few years ago, and why. This often gives a lead as to the direction along which we can best work to further improve our results.

Thyroid surgery has been developing along physiological lines. Instead of merely removing a goitre—for mechanical or cosmetic reasons—or taking out most of a hyperplastic thyroid gland at the request of the referring physician, the thyroid surgeon has been trying to solve his problems by a better understanding of the basic physiology and pathology of the thyroid gland. One of the most hopeful sources of possible help is to be found in the work on the physiology of iodine that has been done by Curtis at Ohio State University, and others. The task of measuring minute amounts of iodine has been simplified and made fairly practical. The methods are still tedious and there are many pitfalls, but they have already made some highly interesting contributions. It seems that normal circulating blood contains about 120 parts of iodine per billion. This amount is usually more than doubled in exophthalmic goitre. After adequate operation, it drops to normal. Cretins, and patients with myxedema, have a low blood iodine. The urinary output of iodine, on an average diet, is fairly constant. The urinary loss of iodine in exophthalmic goitre is greatly increased—sometimes up to nine times the normal. I will not burden you with further figures, for Curtis's work has not been confirmed by some who have attempted it, but this work should certainly lead to a better understanding of thyroid problems. It seems to indicate that, in some respects, hyperthyroidism is analogous to hyperparathyroidism and to diabetes, a sort of "iodine diabetes" as it were. It has always seemed rather unsatisfactory to operate on the thyroid gland in patients with Graves' disease, while believing that the actual cause lies elsewhere and that the disease merely manifests itself by abnormally stimulating the thyroid. It is always somewhat unsatisfactory to treat a disease unless we know the cause of it. Why do some patients with Graves' dis-

*Read before the Seaboard Medical Association of Virginia and North Carolina, at Tarboro, N. C., December 2, 1936.

ease remain well after subtotal thyroidectomy and others suffer recurrence after an identical operation? It does not seem too much to hope that we may some day be treating these cases by some endocrine therapy without surgery.

Another new field for thyroid surgery has appeared with the work of Berlin, and others, on the total removal of the thyroid gland for intractable heart disease. So far as I know, this is the first time the surgeon has attacked a normal organ in order to alter the physiological set-up and aid the patient indirectly. (A possible exception to this statement is the attack on normal ovaries in an attempt to aid in control of a breast carcinoma.) The purpose, of course, is to "lower the tissue needs to the available blood supply". The physiological excuse for the operation is found in Blumgart's fine work on the velocity of blood flow. As compared with a normal individual, an increased metabolic rate speeds up the velocity of blood flow to an amazing degree, while a basal metabolic rate of minus 25 per cent finds the blood flow only about one-half the normal. This certainly should offer welcome relief to a laboring heart muscle. It has now been four years since the first of Doctor Berlin's total thyroidectomies, and (just as he feared) the operation has been greatly abused and overdone. The careful selection of cases is of utmost importance. If the cases are properly selected, the mortality can be kept fairly low and the results are encouraging, being much better in the angina pectoris cases than in the congestive heart failure group. My own experience with these cases has been very limited, but I feel that total thyroidectomy is not nearly as valuable an innovation as we hoped it would be two years ago.

Let us now reconsider briefly some of the older problems that are always with us in thyroid surgery. *The type of anesthesia* used is of great importance. It has always seemed to me that the use of local anesthesia in thyroid work is unnecessary and undesirable. It is hard on the surgeon and much harder on the patient. It is *not* necessary to use local anesthesia to avoid injury to the recurrent laryngeal nerves, for this should not happen. The routine use of cyclopropane as the anesthetic agent in thyroid surgery has, in my opinion, been a great advance. I have used cyclopropane for slightly more than three years and found it highly satisfactory. A very high oxygen flow can be maintained with it, and still we have perfect anesthesia and relaxation. In severe thyrocardiacs this new gas is of especial value. We have used avertin, in moderate doseage, as a basal anesthesia, in most cases. It is fine from the patient's standpoint, and is probably safer than comparable doses of the barbiturates or of the morphine-scopolamine combination.

Let us now go on to the outstanding problem of the thyroid surgeon, namely the management of hyperthyroidism. Much argument has passed around over whether or not the terms "primary" and "secondary" hyperthyroidism are valid. Are "exophthalmic goitre" and "adenomatous goitre with secondary hyperthyroidism" the same disease? It seems to me that the academic argument here is secondary in importance to the practical aspects of the problem. The division into groups seems to serve a useful purpose, for the two conditions differ in age incidence, course, and response to therapy.

We still feel that adequate surgical removal of thyroid tissue is the best treatment that we know about for hyperthyroidism. In a few cases we have tried X-ray therapy, and in several we have tried prolonged rest with mild sedatives and psychotherapy, removal of foci of infection, and so forth. The results have been very unsatisfactory. On the other hand, adequate subtotal thyroidectomy continues to give highly satisfactory results. Recurrences should be few, and the operative mortality should be below 1 per cent. Many surgeons are able to keep their mortality figures down and still do all these operations in one stage. I am told that Doctor Cecil Joll, the British authority, *never* does a two-stage operation for hyperthyroidism. There is no doubt that the preoperative use of iodine has greatly reduced the need for two-stage operations. (At Mayo Clinic only about 2 per cent of the operations for exophthalmic goitre are now done in two stages, as compared to more than 50 per cent before the routine preoperative use of iodine.) However, one can not escape the significance of the figures from such men as Doctor Frank Lahey. In his Clinic the volume of thyroid work is so huge as to make the statistics of real value, and he has found that the mortality each year is inversely proportional to the number of two-stage operations in the very toxic cases. In other words, the more two-stage operations, the less deaths.

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I recently reviewed by own cases and found, to my surprise, that I have done 28 per cent of my operations for exophthalmic goitre in two stages. It seems to me important that, although the sickest cases are selected for the two-stage operations, *none* of our deaths have occurred in this group.

When the patient is first seen we decide as to whether or not the operation can safely be done in one stage, or should be done in divided doses, so to speak. The age of the patient, the amount of weight loss, and the duration of the disease are more important than the level of the basal metabolic rate in determining this. The patient may seem so much improved by pre-operative preparation that it is often a temptation to go ahead and complete the operation in one stage although the patient was listed as a two-stage case when first seen. This temptation must not be yielded to if mortality is to be kept at a minimum.

In the two-stage subtotal thyroidectomies, we allow an average interval of six weeks, and during this time the administration of iodine is continued. The two-stage operations cost the patient more in time, discomfort, and hospital bill, but it is not fair to try and save them from these things at the expense of increased mortality. There is always the possibility that so much improvement will follow the first operation that the patient or family will refuse to return for the second. This occasionally happens, but the responsibility for the eventual poor result is certainly not the surgeon's.

The fact that the mortality of operations on the thyroid gland is now very low does not excuse us from trying to make it still lower. A review of the deaths in any large series reveals a high proportion of avoidable deaths. It often seems as though the cases we are most anxious about before operation come through easily, while an occasional case about which there was little concern proceeds to die. One can not afford to relax one's vigilance. No case should ever be allowed to leave the operating room with laryngeal or tracheal stridor, however mild in degree.

Before leaving the subject of hyperthyroidism, I should like to offer a few words of caution about the so-called "borderline cases." Nearly all our unsatisfactory results fall in this group. If the diagnosis of hyperthyroidism is doubtful, do not operate for hyperthyroidism. If the patient really has this disease, it will become obvious later and operation can be done. If the patient has not hyperthyroidism and has a subtotal thyroidectomy done, the result will be bad and all concerned will regret very much having undertaken it. The feeding of thyroid substance will not quite restore the previous state.

Just one more topic and I should like to get on to the lantern slides. There seems still to be a widespread attitude, on the part of doctors and laity, that a "lump" in the thyroid that is giving no symptoms should be left alone. I am not referring to the diffuse enlargements of puberty and other physiological episodes, nor to endemic goitre. I am referring to the thyroid gland that contains one or more definite discreet nodules. Much confusion has existed, and still exists, as to what the pathological significance of these is. How many of them are neoplastic and how many of them are due merely to irregular hyperplasia or involution? Jackson has clearly shown that non-toxic adenomata should never be treated with iodine.

I think all will agree that operation is often necessary on account of mechanical pressure. I believe also that all will agree that a low-lying adenoma, that tends to become intrathoracic, should be promptly removed. Beyond that there is great disagreement. Doctor Haggard, out of a long personal experience, believes that about 1 per cent of adenomatous goitres develop carcinoma, and 20 per cent become toxic. Such figures are very difficult to estimate.

Now, cancer of the thyroid has always been considered a rare disease, yet about 2 per cent of all surgical thyroid specimens in the large clinics are carcinomatous. In the clinic at Roosevelt Hospital, the figure is nearly 3 per cent. Nearly all give a history of having had a definite lump in the thyroid for a number of years. With the exception of a few, these carcinomata are highly discouraging to treat, and prevention is the only hopeful aspect.

On account of the age incidence and other factors, severe secondary hyperthroidism developing in an adenomatous gland is a more serious disease than primary hyperthyroidism. It is in this group that the operative mortality is highest.

Thus there seems to me ample justification for the routine prompt removal of thyroid adenomata. Many operations will be done which might be called

unnecessary, but many potential tragedies will be prevented.

(The author here presented lantern slides).

CONCLUSION

1. The thyroid surgeon has begun to acquire a more physiological point of view.

2. Total thyroidectomy for heart disease is not such a valuable addition to our armamentarium as we had hoped.

3. There is still a very definite place for the two-stage operation in the management of hyperthyroidism, in spite of careful preoperative preparation.

4. The so-called "borderline" cases of hyperthyroidism should not be operated on until the doubt as to diagnosis is cleared up.

5. Cyclopropane is the ideal anesthetic for thyroid surgery.

6. Carcinoma of the thyroid is, unfortunately, not a rare disease.

7. Thyroid adenomata should be removed for several valid reasons.

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A RESUMÉ OF ETIOLOGICAL FACTORS IN PEPTIC ULCER SYNDROME.*

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There is no single factor or allied group of factors responsible for peptic ulcer. The complexity of this problem is evidenced by the ever increasing experimentation on the subject. The term peptic, applied by Quincke in 1879, is mute evidence of belief at that time of the role of the gastric juice in ulcer formation. This term has included any ulcer in the formation of which gastric juice played a part. His idea regarding local causation was preceded by the statement made by Cruvellier, describing gastric ulcer in 1829, that gastritis was its cause. Its etiology has been frequently ascribed to purely local causes because the characteristic lesion was often the only discernible evidence of disease.

As ulcer increased alarmingly in incidence, various characteristic features of a systemic nature were noted, and it was realized to be a disease of civilization, never occurring spontaneously in the lower animals, and connected in some way with the complexities of modern life.

Not having been proved to be caused by any single factor, the different stages of ulcer, such as exacerbation, quiescence, and recurrence must be thought of as due to various combinations of local and systemic factors. It is these combinations and their intensity of action which cause the various lesions in the life cycle of ulcer.

A great number of hypotheses have been advanced to explain the cause and changes of these lesions. It is impossible to classify these many varied opinions. They cannot be classified without overlapping, but may be grouped under the following headings: CIRCULATORY, TRAUMATIC, CHEMICAL, ANATOMIC, AND NEUROGENIC.

Circulatory: The classical hypothesis of Virchow essentially stated that disturbances in the veins and arterioles of the submucosa resulted finally in necrosis of the mucous membrane, and peptic action of the gastric juice then caused ulceration. There is considerable evidence to continue to support this. The arterial blood supply to the ulcer-bearing area[1] has been shown not to be very plentiful, and a slowing of the blood current in these areas is said to predispose to embolism and thrombosis. It has been demonstrated in man and experimental animals that the typical ulcer causes greatest damage in the muscle and submucosal layers[2], the ulcer origin or larger area of ulceration evidently occurring in these layers, with least tissue damage showing in the mucosa. Since such circulatory abnormalities occur in many ulcer cases, we are justified in feeling that this group of factors is important in starting erosion. Other factor groups, however, play their part in explaining why such vascular changes develop, as well as progression and regression in the ulcer cycle.

Traumatic: This group includes the consideration of all traumatizing influences to the mucous membrane or wall of the stomach. Outstanding in it is the conviction of Rosenow[3] regarding septic emboli

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settling as tiny nests in the depths of the tissue, progressing into inflammatory areas, and leading to ulceration. His work originated the idea of focal infection. The demonstration that certain streptococcic strains can traumatize only certain body tissues has been corroborated by some experimenters, while others[4] have failed to observe this specific effect. Clinical experience cannot answer the question since, by the time we see the patient, he has his ulcer and, if he improves after removal of foci of infection, the good results may be due to dietary or medical care, or to a natural remission of the disease.

Other traumatic influences acting locally, such as gastritis or duodenitis, diaphragmatic hernia, the presence of foreign bodies or irritating substances, the mucosal erosions of purpura, all present good examples causing local tissue damage. Incidentally, faulty posture, with or without ulcer diathesis, is said to cause[5] the costal arch to be pushed inward, compressing the lesser curvature and duodenum, and producing traumatic ischemia and, with excessive acidity, erosion easily continues into ulcer.

These inflammatory and traumatic types of lesions have been particularly brought to recent attention because of greater efficiency in X-ray relief using thin coats of barium, and improvement in gastroscopic technic and interpretation. Recent study[6] has suggested that food allergy, through localized anaphylactic spasm continually occurring, may predispose to ulcer. This may more properly be included in the reflex neurosis group. More study is necessary before it can be said to be a factor in the cause of ulcer. However, it is felt that chronic peptic ulcer is rarely the result of the local causes just named unless some additional factor is present to perpetuate the process. This group of factors then represents, as did the previous group, only one of the causes, or one of the stages of peptic ulcer.

Chemical: It is to be noted that the lesions of peptic ulcer habitually occur in portions of the stomach and duodenum, habitually bathed with acid chyme. The commonest seat of ulcer in man is the first part of the duodenum, where the onrushes of acid stomach juices are met, diluted, neutralized, and buffered for acceptance by the intestine. Tissue damage consistently occurs in these areas when there is an absolute or relative excess of hydrochloric acid. Four independent secretions of the gastric glands have been demonstrated[7], the principal one being an isotonic solution of practically pure hydrochloric acid. Experiments[8] show the concentration of acid necessary for the digestion of living frog tissue to be 0.1 per cent to 0.15 per cent, and the per cent of free acid present in pure gastric juice is known to be four or five times that amount. Beuchner stimulated gastric acidity in rats with histamine and produced ulcers, and also used 1.5 per cent HCl in the stomachs of cats, producing errosive gastritis[9]. These, and many other experiments have shown what an important part increase in gastric HCl plays in the erosion of tissue. By some late observers[10], pepsin is now thought to play no part in assisting the acid portion of gastric juice to attack mucosal cells.

A continued increase in acid secretion calls forth a vigorous effort on the part of gastroduodenal cells to throw out defenses against the increased tendency to erosion. Fluctuation of acid secretion normally occurs[11], allowing these cell defenses to rest from time to time. The main cell defenses are dilution and neutralization brought about by the gastric mucus, and through regurgitation of the duodenal contents[11].

The extreme importance of these defenses is shown by widely repeated and modified animal operations[12] which demonstrate the immediate formation of ulcer where gastric juices first impinge on tissue temporarily deprived of the alkaline juices of the duodenum. Not only does this experimental ulcer form readily, but it equally readily disappears, provided the acid juice is made to return to a part of the tract where the defense forces are present.

The efficient defense power of the duodenal contents depends on its remarkable reserve function[13]. This involves a three-cornered chemical combination of duodenal secretion, pancreatic juice, and bile. The first contains the alkaline Brunner's glands secretion which has been demonstrated in dogs to act copiously after HCl acid feedings[14], and also the hormone enterogastrone[15] which has been isolated and proven to retard gastric secretion through inhibiting motility. Pancreatic juice has recently been shown to have at least twice the alkalinity[15] of bile and by some is thought to be the most important of these three in maintaining the alkaline reaction of the duodenal contents. In recent studies, bile has been excluded from the duodenum without seeming to alter the acidity or alkalinity of the duodenum at all.

Another chemical factor involving tissue defense is one of the gastric juice components, being a buffer-

containing secretion[7] which neutralizes and dilutes the gastric HCl. It is supposed to be similar to blood plasma in so far as its simple chemical constituents are concerned.

Leaving tissue defense for pure chemistry, some foreign workers, as well as Americans, are recently convinced[17] that the deprivation of certain amino acids result in ulcer formation, and that the replacement of histidine (Larostidin) by injection controls its progression. An interesting effect of these injections will be mentioned later.

Gastric mucin plays no part in etiology[18]; it is supposed to coat an ulcer, protecting it against the gastric secretion, and relieving the symptoms. It does not act by neutralization.

The old contention that an ulcer occurs from a chemical imbalance brought about by lowered alkalinity of the blood in mucosal capillaries (Pavy) has been recently expressed differently in the belief[19] that ulcer is due to a primary acidosis of the tissues.

The action of these chemical factors, and less important ones not mentioned, involves the daily level of gastric acidity and its relation to gastric ulcer. The acid level controls the conversion of an erosion into an ulcer. Since the tissues are not intended to counteract a continuous hyperacidity, the above mentioned defense factors eventually wear out. If this bombardment is continued, the result is primary erosion of the mucosa. However, danger of actual ulcer is far greater as a result of these acid and defense factors, plus factors from other groups. In other words, to cause peptic ulcer, this chemical group of factors is usually thought of as acting in conjunction with other forces.

Anatomic: For years many observers have expressed the belief that there is a characteristic appearance of ulcer patients. This may be true; however, anatomic changes cannot be thought of as a cause of ulcer, but as a result of characteristic changes in other systems of the body, which themselves have connection with ulcer causation.

A recent report[20] of 2,185 persons of widely divergent build, all having normal gastric analyses, minimizes this anatomic factor. Other investigators[21] have shown that with few exceptions there were no anatomic characteristics distinctive of patients with peptic ulcer, cholecystitis, or diabetes mellitus.

Neurogenic: Psychic disturbances are strikingly the same in many ulcer patients, and the psychic part of ulcer diathesis is well accepted. Recent reports emphasizing such value[22] show that relief of active duodenal ulcer pain was obtained in more cases from saline injections than from histidine injections, and also[23] that daily injections of distilled water relieved the symptoms in about one-half of a series of peptic ulcer cases.

Dealing with industrial negro workers, a series shows[24] their frequency of ulcer to be similar to that of the white race under similar working and living conditions. Racial immunity to ulcer is therefore not a fact, but the lack of ulcer incidence in Southern negroes under all conditions is evidently due to psychological differences from the white race. Only those negroes out of their agricultural environment and facing the complexities of life have acquired the habit of worry, which is more peculiar to the white race. Although psychic factors are present in many cases, it is not clear here just what portion of the nervous system is at fault in originating local changes causing ulcer.

Other factors have directly to do with the autonomic nervous system. Stimulation of the parasympathetic nervous system causes, among other effects, three frequent precursors of ulcer, namely, hypermotility, hypersecretion, and pylorospasm. Continuous irritability of this system, producing pyloric ischemia, then erosion, and ulceration, is the hypothesis[25] of a widely quoted advocate of a neurogenic factor.

The classic example of parasympathetic drug stimulation is through pilocarpine, while atropine counteracts the stimulatory effects. The vagus is part of the parasympathetic system. One contention[26] is that irritability or actual neuritis of the vagus nerve causes peptic ulcer, and it has been shown[27] conversely that section of the vagus in controlled experiments decreases the acidity of gastric secretion. Others[28] have dissected the vagus nerves of the stomach and prevented the occurrence of ulcers which ordinarily would occur.

Less known in relation to peptic ulcer is the sympathetic system. This, if stimulated, causes hypochlorhydria, gastric atony, lessened peristalis, vasomotor and emotional stimulation, tachycardia, and palpitation. Drug stimulation of the sympathetic system, which should "neutralize" parasympathetic stimulation, is through adrenalin, checking motility and drying secretions, although clinically atropine is used directly to counteract parasympathetic stim-

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ulation because of ease of administration and more lasting effects.

The autonomic organs have this dual nerve supply, which is involuntary and antagonistic. These mutually antagonistic actions, parasympathetic and sympathetic, provide a protection balance as long as function remains normal.

Important convictions[29] relate to imbalance between these systems as the origin of ulcer. Should this nervous balance between the two systems be disturbed, one or the other gains ascendency, and either vagotonia (parasympathetic stimulation) or sympatheticotonia results. If vagotonia occurs, causing the prerequisites of mucosal erosion, the cycle of ulcer has begun.

It is only proper to mention tobacco here. That nicotine has a powerful vagotonic effect can be appreciated by all who remember the consequence of their first cigar, and excessive smoking, even in habituees, is well-known to be highly disturbing to digestive processes. Nicotine first stimulates, then depresses the parasympathetic. If its action were constantly stimulatory, there would be no doubt as to its part in the etiology of ulcer. However, the therapeutic test of withdrawal of tobacco, and not the chemical or x-ray findings, should be the criterion as to whether or not the individual should smoke[30].

Another factor involves reflex stimulation from certain lesions in the abdomen, causing a pylorospasm. Cholecystitis is a main offender here, although chronic appendicitis runs a close second, and acute appendicitis produces the same reflex spasm mechanism. Excessive catharsis and possibly intestinal allergic stimulation produce the same spasm. There are many properly diagnosed ulcers which disappear upon removal of the offending lesion.

Recalling the sympathetic nervous system connection with vasomotor and secretory processes, it is believed[31] by some that the control of the body is through the sympathetic system, the suprarenals and thyroid, all being guided to some extent by the fore brain. A contention[32] has been advanced that through worry, strain, infection and other causes, these controlling parts lose their normal relationship, the results depending on the type of imbalance and manifesting themselves in hyperthyroidism, peptic ulcer, neurasthenia, or hypertension.

Further impressiveness of a neurogenic factor is through certain brain lesions, causing peptic ulcer[33]. Production of experimental ulcers has resulted with regularity from drug and other stimulatory effects to the cortex of the frontal lobe[34], brain stem[38], nuclei in the region of the third ventricle[35], and fiber tracts[33], as well as the vagus[36]. From experimental work on animals, there is some evidence[33] to show that a parasympathetic center exists in the brain and that ulcers develop after prolonged stimulation in this region.

This possibility is indeed suggestive since we know the tendency for ulcer to occur in vagotonic types, and other factors mentioned can be thought of as working in association with this fact. It is easily seen that changes in the nervous system comprise the most significant single factor in the causation of ulcer, and that peptic ulcer should be thought of as a systemic disease with a local lesion in the form of an ulcer.

But various individual combinations of some or all of these factors, local and systemic, are responsible for the life cycle of peptic ulcer. It is these individual combinations and their intensity of action which cause the different stages of an ulcer cycle or, in other words, which bring on a relative increase or decrease in the signs and symptoms known as the peptic ulcer syndrome. These combinations of factors and their intensities differ in each ulcer syndrome patient. The clinical results of these various factor combinations may roughly be divided into three separate groups.

In the first group are included patients who suffer with the peptic ulcer syndrome but who neither have nor will ever have peptic ulcer. The combination of factors causing their distress are of the neurogenic group, operating by reflex stimulation, and relief can only be obtained by correct diagnosis and removal of the reflex cause.

The second group comprises those patients with the peptic ulcer syndrome, but in whom the life cycle of peptic ulcer has not progressed to the actual stage of ulceration. The combination of factors responsible for this group are probably lacking in scope as well as intensity. In this group the offending factors have been balanced or controlled before the ulcer stage was reached. These are potential ulcer cases and, depending on future progression of the ulcer cycle, may or may not become actual ulcer cases.

The third group is that of actual ulcer. Retardation in the ulcer life cycle never took place and ulceration occurred. The offending factors held full

sway and slowly or rapidly the cycle progressed to the ulcer state. If further persistence of offending factors occurs, the ulcer cycle continues, with perforation, hemorrhage, or obstruction. Without further persistence of offending factors, there may be spontaneous healing without knowledge of having had an ulcer, or, if the syndrome was recognized and treatment instituted, a balance of control of these factors will bring about retrogression of ulcer cycle, causing a remission of symptoms.

In conclusion, a few remarks regarding the necessity of directing treatment at these offending factors will not be amiss. The single exacerbation, thought by some to be a disease in itself, is in reality only part of the life cycle of ulcer. The complete control of all groups of factors is necessary to stifle this life cycle. Apparently successful treatment causing decrease in the symptoms of ulcer syndrome may be only temporary, and does not prevent a return of symptoms. Therefore, in addition to relief from local distress through alkalinization, dietary regime, and antispasmodic drugs, the successful clinician must correct other factors by reeducation in the manner of living, and improvement of daily routine activities and habits, persuading the patient that his ability to get well rests to a considerable extent in his own hands.

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ANGINA PECTORIS AND INSULIN.*

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Fifty thousand of the people now living in Virginia will die with diabetes. Insulin will allow a large number of these to attain their normal life span. It will lessen the suffering and disability of thousands of these people. Prior to insulin essentially all children with diabetes died with it within a year or so. Now we know many such children who have grown and developed normally to maturity, and some of these are now raising families of their own. These children have not been invalids. They pursue the normal activities of childhood and adolescence and not infrequently excel in them. Physically and mentally they can meet on equal terms their more fortunate playmates. To you doctors who saw the rapid and inevitable wasting and decline and death of these young people in the pre-insulin era, the health, vitality, and cheerfulness of the diabetic child of today must seem miraculous. Among the older diabetics the benefits are hardly less astounding. Even when I began to study medicine, major surgical operations were postponed until the surgical condition threatened to destroy the patient. Correction of inconvenient or mildly disabling conditions was rarely done. Yet nowadays we operate on the diabetic as confidently as we do on the non-diabetic. Even severe acidosis does not deter us in a case of extreme emergency, because we know that with insulin to aid us we can safely carry the patient through the period of convalescence. With insulin we can give a diet adequate in every way to satisfy the appetite, to maintain the health of the patient, and to prevent the premature aging that gave rise to such fearful complications as diminished vision, gangrene, and heart disease.

Proper dosage must be given to obtain the greatest benefit and to avoid the harmful effects of this powerful substance. A drug is valuable in direct proportion to its activity, but this action must be controlled in accordance with the need. Insulin is not a placebo. It has a strong and direct action that produces marked effects. No doctor would think of employing a powerful medicine without knowing the ordinary dosage and having a definite knowledge of the need of the patient under treatment. In cardiac patients one does not try to give at one dose enough digitalis to completely digitalize the patient. Relatively small doses are given daily so that the effect of the drug on this individual patient may be observed carefully and over-dosage avoided. One takes note of the symptomatology, the cardiac rhythm, the pulse rate, the blood pressure, and other signs. One tries to achieve the therapeutic effect without producing toxicity. The use of insulin requires even greater care, for there is no standard dose as there is with digitalis. Only with meticulous care and diligent work can we so regulate the dosage as to control the diabetes and at the same time avoid insulin reactions. Instead of utilizing the pulse rate, cardiac rhythm, etc., to tell us when we are approaching the therapeutic limit, in diabetics we determine the amount of sugar in the urine and blood. We notice the amount of moisture in the mouth and on the skin, the muscular control and reactions, and the mental and emotional reaction of the patient. The rapid changes from hour to hour in the metabolic state of the patient necessitate frequent examination. Experience in using insulin is of undoubted help, but nothing replaces continuous observation and care. Even then hypoglycemia may occur.

These insulin reactions are not always recognized. Hunger, sweating, weakness, and trembling usually identify them; but paralysis, convulsions, delirium, emotional and mental upsets, and sudden vascular accidents may be precipitated by insulin over-dosage. Cerebral damage,[1] hematuria,[2] and retinal hemorrhage and detachment[3] have followed the use of insulin. Cardiac irregularity[4] during hypoglycemia has been observed. Hetenyi[5] reported the occurrence of severe precordial pain after insulin alone, but this did not occur when insulin and glucose were used. Blotner[6] reported a case of cardiac infarction associated with hypoglycemia. Root and Graybiel[7] reported a fatal case of coronary thrombosis during insulin hypoglycemia, and Parsonnet and Hyman[8] described cases of thrombosis following insulin. Strouse *et al.*[9] found that some of their patients grew worse as the diabetes improved, but Joslin[10] emphasizes the benefit from the judicious use of insulin.

*Read before the sixty-sixth annual meeting of the Medical Society of Virginia, at Staunton, Va., October 13-15, 1936.

Beach[11] listed several patients in whom anginal attacks were associated with various constitutional abnormalities, including hypoglycemia. The object of this paper is to remind us that these elderly people are subject to heart attacks and that we must be very careful to avoid injury to the heart. From the standpoint of diabetes we can see that, although any one such type of vascular accident may seldom be caused by insulin, the sum total of all such injuries is not negligible. During a period of only nineteen months the following four cases were seen by me, and a fifth patient in this period developed congestive failure apparently due to insulin over-dosage.

Case 1.—A woman sixty-one years old, with diabetes of eight years' duration, consulted me on account of "sick spells." These spells came on abruptly about three or four hours after a single daily dose of thirty-five units of insulin. Initiating the attack were extreme nervousness and some trembling. The major symptoms were nausea and faintness associated with weakness, substernal pressure, pain and residual tenderness under left breast, and apprehension. The first attack was the most severe, and was accompanied by weakness and malaise so severe that she remained in bed for about forty-eight hours. The physical examination showed a very obese person with moderate arteriosclerosis, a blood pressure of 210/106, a heart of indeterminate size but with rapid rate and normal rhythm. No murmurs were heard on the first examination, but subsequently a systolic murmur was noted at the base of the heart. The urine taken two hours after breakfast contained 3.5 per cent sugar, and the blood sugar was 160 mg. Regulation of the diet permitted the discontinuance of insulin and a cessation of the "sick spells," although subsequently she did have one momentary attack of pain going from the epigastrium to the left shoulder. During the past fourteen months she has had no attacks of any kind, although she has worked hard and climbed steps ten times daily.

Case 2.—A woman sixty-five years old, with diabetes of ten years' duration, came in on account of neuritis in the left arm. She gave a history of anginal attacks for four years, coinciding with the duration of her treatment with insulin. The attacks were typical with sudden onset of precordial pain radiating down the left arm. All attacks occurred several hours after the single daily dose of insulin, at first thirty-two units, and more recently thirty-five units. Twenty months prior to the first visit to me she had a severe attack with pain lasting for several days and was bedridden for the succeeding four months. The physical examination showed a very fat, elderly woman with moderate arteriosclerosis, a blood pressure of 185/95, a systolic murmur in the precordium, pulse rate seventy-five, and a definite subdeltoid bursitis. The urine contained no sugar and the blood sugar was 71 mg. The insulin was rapidly decreased and soon omitted without the occurrence of glycosuria in spite of a liberal diet. Reduction of the insulin dosage was followed by complete relief from anginal attacks, and this relief has extended for over a year.

Case 3.—A woman sixty-four years of age, with diabetes of seven years' duration, came in complaining of substernal choking. Insulin treatment was begun six months before, at first twenty units before each meal, later forty units, and more recently twenty units again, giving a total daily dose of sixty to one hundred and twenty units of insulin. On this regime the patient had frequent insulin reactions consisting of trembling, dizziness, weakness, and crying. Associated with these attacks three or four times each week were typical anginal attacks of substernal pressure, precordial pain radiating to neck and down both arms, and inability to catch breath. The attacks were sudden in onset and brief in duration. They usually occurred in the late afternoon, less frequently several hours after supper and rarely just prior to lunch. The physical examination showed a somewhat obese, ruddy individual with moderate arteriosclerosis, a soft nodule in the thyroid isthmus, a slightly enlarged heart with an occasional premature beat, a blood pressure of 270/140 and pulsus alternans. The urine contained no sugar, and the blood sugar at noon was 105 mg. In spite of rapid reduction and final omission of the insulin the sugar did not recur. Since the omission of insulin, no anginal attacks have occurred during the two months since the patient was first seen.

Case 4.—A man sixty-three years old, with diabetes of five years' duration, came in complaining of dyspnea. He had suffered from dyspnea and substernal pain on exertion for two years, but in the five weeks prior to his visit to my office he had suffered from four attacks of sudden dyspnea and substernal pressure not associated with exercise. These attacks occurred several hours after a single daily dose of twenty units of insulin at bedtime.

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Adrenalin gave instant relief from the attack. Physical examination showed an obese man with marked arteriosclerosis, a greatly enlarged heart with a few premature beats, a few rales in the base of each lung, and a blood pressure of 140/75. The urine was free of sugar and the blood sugar one hour after breakfast was only 182 mg. in spite of no insulin for the preceding week. This patient did not return to my office, but I heard that he died three months later with a heart attack.

Important fundamentals in the treatment of diabetics are illustrated by the above four cases. Vascular degeneration does develop in the diabetic, but it seems more prone to occur in the elderly patients who have remained obese on a high fat diet containing unlimited butter, cream, fat meat, and salad dressing. We should do our best to so treat the diabetic that premature aging does not occur. Once it is present we must treat the patient cautiously and avoid the harmful effects of too zealous efforts to bring down the blood sugar rapidly. It is interesting to note that these patients, once the fat content of the diet had been reduced, remained free of sugar without insulin on a diet which contained a liberal amount of starch and was more palatable than the former diet. It seems almost certain that too low a blood sugar precipitated the anginal attacks in these cases. The occurrence of the attacks at the time of expected hypoglycemia, the occurrence in two cases of clinical insulin reactions at the time of the angina, the relief of the angina by adrenalin in one case, and the complete freedom from anginal attacks in the three cases remaining under observation after omission of the insulin, all point to hypoglycemia as the precipitating cause of the attacks.

Avoidance of hypoglycemia and at the same time adequate regulation of diabetes in cases requiring insulin therapy should be our aim. The best insulin dosage is the least amount compatible with control of the glycemia, and glycosuria. The best way to determine this is to begin treatment with very small and, if necessary, frequent daily doses of three to five units and to gradually and slowly increase the size of the doses until control of the sugar occurs. This entails the daily use of frequent tests of the urine and, if practicable, of the blood to determine the effect of the preceding dose before giving the next dose. Many diabetics who will eventually need only one or two daily doses can be profitably treated with four daily injections at first until we become familiar with the reaction of this individual patient to insulin. Then we can attempt to reduce the number of injections and yet with our greater knowledge of the patient avoid insulin reactions. Of course, insulin should not be given to any diabetic who adequately utilizes a healthful diet. However, emergencies may arise which necessitate the use of insulin in patients who ordinarily need none.

Determining the size and optimum number of daily doses of insulin and the best time for their injection is the next step in insulin therapy, once we have the sugar controlled and know the approximate daily requirement. In general, a requirement of less than ten units can often, but not always, be given safely as a single injection about twenty minutes before breakfast. From ten to thirty units usually requires at least two injections, given twenty minutes before breakfast and supper. More than thirty units usually is best given before breakfast and supper and at bedtime or before the midday meal. If the fasting blood sugar is over 150 mg., best results are apt to follow the injection at bedtime. If the blood sugar falls low at noon in spite of giving fruit at 11 A. M. and glycosuria occurs in the afternoon, then insulin should be given before the midday meal, even though this means four injections daily. The breakfast dose is the largest of the day, the supper dose being about four-fifths as large, the noon dose half as large, and the bedtime dose no more than one-fourth the size of the breakfast dose. Ten grams of carbohydrate, such as one orange or two Uneeda crackers given about three hours after the mealtime doses of insulin, do much to lessen the likelihood of insulin reactions.

Some conditions seem to predispose to insulin reactions. A new diabetic requiring insulin for regulation may so improve that within a few weeks the dosage previously needed may become excessive. A few routine visits to the doctor for insulin reduction, if needed, will enable these people to avoid this trouble. Complications, such as infection or acidosis, necessitate a large increase in the insulin dosage. As the complication subsides, rapid reduction in the insulin must be made. Attempts to regulate too rapidly the uncomplicated diabetic increase the danger of hypoglycemia. Improper distribution of insulin through the day often leads to reactions. A dosage of fifteen units before each meal is usually associated with either too high a blood sugar in the

morning or too low a one in the late afternoon or at night, as occurred in Case three. Sometimes the attempt is made to decrease the fasting blood sugar by increasing the dose of insulin before each meal. This seldom lowers the blood sugar before breakfast but it often causes reactions later in the day. A small dose at bedtime is more effective and less harmful. Case four illustrates the danger of giving insulin when no food is eaten. Sometimes the wrong dose of insulin is taken by the patient because he has obtained insulin of different concentration from his usual or because he has used the wrong type of syringe. Cases one and two said they were taking only fourteen units at a dose, whereas actually they took thirty-five units due to the type of syringe used. Variations in the diet, whether they be deliberate or merely due to nausea or vomiting, are hazards in the treatment. If vomiting occurs after the insulin has been taken, we should try to prevent the hypoglycemia by giving the patient orange juice or ginger ale at hourly intervals until the action of the insulin has worn off.

Exercise tends to lower the blood sugar and is a frequent cause of reactions. One of my patients doubted this until reactions twice after he had worked hard cutting grass in his yard convinced him of its truth. Reduction of the usual amount of insulin or the addition of a light lunch should be made for unusual exercise. By utilizing these facts we can decrease markedly the number of reactions among our patients.

In closing, I would like to emphasize that insulin is a vital adjunct in the treatment of diabetes, that it is a powerful substance which must be used with care to prevent its harmful effects, and that these effects seem most often dangerous in elderly diabetics. Other situations that add to the danger are hazardous occupations, such as driving automobiles, or mistaking a case of hypoglycemia for diabetic coma and giving insulin. This latter has been blamed for a number of fatalities. By tireless effort and attention to detail we lessen the likelihood of these reactions.

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DISCUSSION

DR. ERNEST G. SCOTT, Lynchburg: I have been much interested in this excellent paper of Dr. Jordan. He calls our attention to one danger of insulin over-dosage that is little appreciated by the average physician who treats diabetes, i. e., the danger of precipitating an attack of angina pectoris or of coronary thrombosis. This has been referred to as insulin angina or hypoglycemic angina.

This danger is especially frequent in elderly patients with long-standing diabetes. I am quite sure that I hastened the death of a patient in this manner several years ago. He was an elderly, obese inmate of the City Home who had presumably had diabetes for many years with no insulin or special diet. When he was hospitalized for a minor complaint and glycosuria discovered the effort was made to get him sugar free rapidly with insulin and diet. Several days later he died suddenly, soon after complaining of a pain over the sternum. Unfortunately no autopsy could be obtained.

Many writers have emphasized the fact that since the advent of insulin for diabetes arteriosclerosis with its complications has replaced coma as a cause of death. Coronary disease is, of course, known to be very frequently associated with diabetes. Autopsy statistics have shown it to be more than five times as frequent in diabetics as in non-diabetics. Root and Graybiel in their paper mention statistics showing that actual coronary infarction, old or recent, has been found postmortem in from 12 to 25 per cent of diabetics as compared with an incidence of 4 per

cent in non-diabetics. Viewing the matter in another manner, diabetes has been found in from 10 to 14 per cent of patients with coronary thrombosis.

The association of angina with hypoglycemia is a well-established fact. At least two series of clinical experiments have been done with diabetic patients, showing that anginal attacks can be produced by insulin hypoglycemia or even by dietary hypoglycemia. Hypoglycemia has been shown to cause definite changes in the electrocardiogram consisting essentially of a flattening of the T-waves and a lessened amplitude and widening of the Q-R-S group. These changes are abolished by intravenous glucose.

The exact mechanism of the production of hypoglycemic angina is unknown. Presumably the diabetic heart muscle becomes accustomed to a high blood sugar and later requires this for its optimum function. The electrocardiographic changes prove that some fundamental change in heart muscle physiology is produced by hypoglycemia. It has been known for some time that injections of glucose are beneficial in heart muscle failure. This is an excellent cardiac stimulant. Experimental work by Ginsberg and others has shown that intravenous glucose increases the coronary blood flow due to dilatation of these vessels.

Dr. Jordan has given us many valuable hints as to the proper use of insulin. It is amazing to learn that in this enlightened age a diabetic patient could be treated with one daily injection of thirty-five units of insulin! This patient's former doctor will welcome protamine insulinate, if he ever learns about it. It is almost as unusual to hear of one daily dose of insulin being given at bedtime. I am glad that Dr. Jordan is considerate of his patient's pocketbooks. Think of the savings to the patient who was taught that he could get along with no insulin when he had been using as much as 120 units a day!

The moral of Dr. Jordan's paper is to use insulin cautiously in old diabetics when no emergency exists. They are undoubtedly better off as far as the heart and vessels are concerned, if they are not too strictly controlled and are allowed to have a little glycosuria. In other words, it is the old story of treating the patient and not the disease.

DR. PAUL CAMP, Richmond: I am sure that each of us enjoyed Dr. Jordan's excellent paper and also Dr. Scott's helpful discussion of this paper. Dr. Jordan covered his subject both from the scientific and clinical viewpoint. Today, as is the usual custom, Dr. Jordan gave us some very useful, practical and common sense points concerning the treatment of diabetes in general and particularly those elderly cases who actually have angina pectoris or who are likely to have some degree of coronary artery disease.

Diabetic coma is no longer the chief cause of death among patients with diabetes. Joslin states that now every other diabetic dies of arteriosclerosis. From 1894 to 1914 15 per cent of the deaths in Joslin's series of 342 deaths were due to arteriosclerosis, and in the period from 1926 to 1929 the death rate from arteriosclerosis had risen to 48 per cent. The coma death rate during the same period dropped from 61 per cent to 11 per cent.

It is an accepted fact that the percentage of arteriosclerosis is higher in a group of diabetics than in a control group of similar age. Furthermore, arteriosclerosis of the heart is responsible for the highest percentage of arteriosclerotic death in diabetics being 43 per cent, as compared to legs 37 per cent, brain 11 per cent and kidneys 6 per cent. Nathonson found that in 100 autopsies on diabetic patients forty-one showed severe coronary disease, and above the age of fifty the incidence of coronary disease was 52.7 per cent as compared with 8 per cent in a larger series of non-diabetics of the same age. Other authors, such as Blotner, Graybiel and Root, have likewise reported a higher incidence of coronary disease and angina pectoris in diabetes as compared to the usual non-diabetic population.

What are we going to do about the important problem? I believe that our *first* point of attack should aim at the prevention of arteriosclerosis. It is true that we cannot conquer old age but, by the use of proper diets which approach the normal diet in composition, we should be able to prevent the diabetic from acquiring an abnormal degree of sclerosis for his age. Dr. Jordan is more qualified to discuss diets with you than I am; however, it seems the tendency now to give a larger percentage of carbohydrates in the diet of diabetes.

Second, if these diabetic patients have acquired arteriosclerosis of the coronaries, we should be very careful in treating these cases. Dr. Jordan has discussed this point very admirably in his paper. There seems no doubt that a low blood sugar, and a rapid change from high to low in particular can bring about anginal attacks or even coronary thrombosis. The exact mechanism of this is not known; however, it seems reasonable to assume that a heart which has sclerotic and narrowed arteries needs a liberal supply of nourishment and that, if this nourishment is cut down, then anginal pain will develop. There are two chief theories in regard to the production of the pain. The first is that anginal pain occurs simply because the heart muscle is temporarily undernourished. The second is that pain occurs because, due to a failure of proper glycogen metabolism in the heart muscle, there is an excess accumulation of pain producing substances. It has been definitely shown on a number of cases that angina pectoris follows over-dosage of insulin, and, furthermore, glucose therapy is of benefit in some types of cardiac cases in which there is an apparent undernourishment of the myocardium. In addition to the rapid fall of the blood sugar, acidosis seems to play a definite role in bringing on a myocardinal infection. Third, we should make an earnest effort each time we see a diabetic patient to determine if the patient has co-existing arteriosclerosis. I wish to put especial emphasis on the problem of sclerosis of the arteries of the heart. A definite percentage of these diabetics will not relate any cardiac symptoms, yet, when they come to autopsy, will present definite coronary sclerosis. Some will relate more or less cardiac symptoms;

however, most of this group will enter a hospital because of some complaint other than the heart.

In Blotner's series the chief cause of death in 43 per cent of the cases was directly attributed to heart disease. In addition to a careful history and physical examination on these patients, an electrocardiogram should be taken, if such is practical, because an electrocardiogram is the most reliable laboratory method of demonstrating coronary sclerosis. X-rays of the heart and great vessels may give confirmatory evidence.

If we find evidence of any cardiovascular disease, then due importance must be attached to the treatment of the cardiovascular system. If the patient is overweight, this should be regulated. The proper use of rest, exercise, fluid intake, digitalis, nitrites and the xanthine derivatives is imperative. It seems to me that since the concensus of opinion is that the xanthine derivatives are of value in causing dilatation of the coronary arteries, these derivatives should certainly be given a trial; hence, the use of aminophyllin, theobromine-sodium-salicylate, theocin, theocalin and like products may increase the nourishment of a heart that is crippled because of narrow coronaries, and enable the patient with such a heart to live a more comfortable and longer life.

Finally, Case IV of Dr. Jordan's series is of especial interest as it presents an instance of a man having two serious diseases either one of which may cause unconsciousness or sudden death. Yet this man continued as a locomotive engineer and hence continued to endanger his life and the life of others. It would seem wise to advise against such occupations in similar cases.

DR. WALTER B. MARTIN, Norfolk: There is one point I want to bring out, and I want to thank Dr. Jordan for a very complete and very worth-while discussion of this subject. He has spoken of anginal attacks associated with hypoglycemia following the use of insulin. I wish to suggest the possibility that these attacks may occur as a result of spontaneous hypoglycemia. A man came into my office with a history of attacks of severe precordial pain and nervousness occurring early in the morning after getting out of bed, but not during the day. A five-hour glucose tolerance test revealed a low sugar curve, the blood sugar dropping to 57 milligrams per 100 c.c. at the end of the fourth hour. A typical attack of nervousness associated with precordial pain developed at this point. By giving this patient food at bedtime and orange juice before getting up in the morning, the attacks were relieved.

DR. ERNEST B. BRADLEY, Lexington, Ky.: I should like to discuss Dr. Jordan's paper just for a second. There are two or three very elementary things in the treatment of diabetes. Sometimes surgeons and others will order a low carbohydrate diet for a diabetic, and sometimes no "carbohydrates." I am sure that those of us who have treated diabetes and are familiar with the modern ideas feel that this is one of the worst things that can be done. It is best to give at least 100 grams of carbohydrate and adjust the number of calories by cutting down the amount of fat in the diet. If patients are treated in this way in early life they will not, probably have arteriosclerosis in later life. I believe that the control of diabetes can be done practically as well by examinations of the urine after the diagnosis is made by the glucose tolerance test. More of the ordinary cases can be controlled without the use of frequent blood sugar examinations than we think. In other words, I think the control of the glycosuria is more important than the control of the glycemia. In older patients, if they do not spill sugar I think that is evidence that they are getting along very well.

As Dr. Jordan has said, very severe hypoglycemia will precipitate an anginal attack. If the urine remains sugar free the diabetes cannot be very serious. I think it is much better to have a higher blood sugar than to run the danger of precipitating an anginal attack from hypoglycemia. Of course, the percentage of diabetics with arteriosclerosis is much greater than in ordinary patients of that age, and to suddenly reduce the blood sugar may be a very dangerous thing.

I am very glad to have had the opportunity of discussing this subject.

OBSERVATIONS IN THE MANAGEMENT OF ONE HUNDRED AND SIXTY-FOUR FOREIGN BODIES IN THE AIR AND FOOD PASSAGES.*

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and
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It is our purpose to bring again to the attention of the medical profession, especially those in general practice, the importance of foreign body consideration in every case of obscure chest condition. During the past fifteen years, bronchoscopy has become a recognized specialty in every modern hospital. Every hospital should have a well-equipped bronchoscopy department. In reviewing the literature on this sub-

*From the Department of Bronchoscopy, Gill Memorial Eye, Ear and Throat Hospital.

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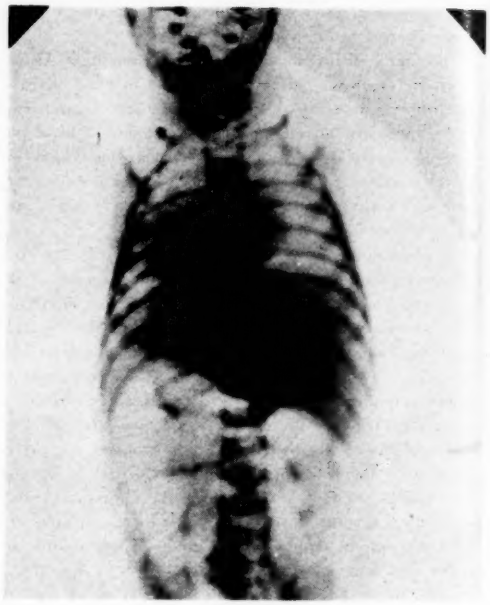
ject, one cannot help being impressed by the number of foreign bodies that have been overlooked in considering the various chest conditions. In every case of unexplained cough, the patient should have the benefit of a bronchoscopic examination.

In reviewing the records of one hundred and sixty-four cases, it is our purpose to present the following information: (1) The signs and symptoms of foreign bodies in the respiratory tract; (2) The signs and symptoms of foreign bodies in the esophagus; (3) The location of foreign bodies in the respiratory tract and esophagus; (4) The cause of death in this series; (5) The number of tracheotomies; (6) Methods of prevention; (7) Our methods of preparation of the patients for bronchoscopy.

SIGNS AND SYMPTOMS OF FOREIGN BODIES IN THE AIR PASSAGES.

A definite history of choking followed by severe coughing, with or without cyanosis, must always be considered as a foreign body until proven otherwise by every diagnostic procedure at our command. The types of bronchial obstruction are (1) Type 1: Bivalve which may only have cough as a symptom; later may have symptoms of lung suppuration.

Patient: Age three years. Multiple foreign body. Jack rock in upper esophagus. Tin doll in stomach.



Patient: Age one month. Foreign body: Open safety pin point up in esophagus.

(2) Type 2: Check valve. Air is trapped in the invaded lung, producing greater transparency on the obstructed side, with displacement of the heart to the free side, and depression and flattening of the dome of the diaphragm on the invaded side. (3) Type 3: Obstructive atelectasis. Results in drown lung, later in abscess. This condition is not affected by inspiration or expiration and is clearly shown on X-ray. Physical signs are characterized by absence of breath sounds and dullness on side of involvement. Heart is displaced toward the involved side.

Foreign Body in Esophagus: History of choking and gagging followed by dysphagia is always suggestive of foreign body in the esophagus. Children may have drooling saliva and regurgitation of food. Symptoms referable to the respiratory tract may be caused by a large foreign body pressing on trachea or from overflow of secretions into the larnyx. Esophageal foreign bodies have eroded from the esophagus into the trachea.

FIRST ANALYSIS OF 164 CASE RECORDS

Foreign body in hypo-pharynx	8
Foreign body in crico pharyngeus	25
Foreign body in larynx	9
Foreign body in trachea	5
Foreign body in right bronchus	31
Foreign body in left bronchus	18

Foreign body in esophagus	52
Foreign body in stomach	12
Foreign body in large intestine	1
Foreign body in small intestine	2
Foreign body between vocal cords	1
TOTAL	164

SECOND ANALYSIS OF 164 CASES

Deaths due to:	
Acute pneumonitis following removal of F. B.	2
Lung infection	2
Perforation of bronchus	1
TOTAL	5

THIRD ANALYSIS OF 164 CASES

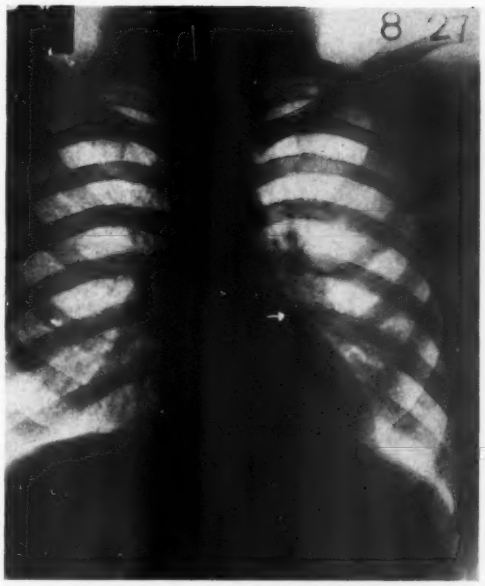
Tracheotomies Necessary

1st—Dyspnea prior to bronchoscopy	10
2nd—Dyspnea following bronchoscopy	3
3rd—For removal of foreign body	2
4th—For aspirating pus in lung abscess	1
TOTAL	16

FOURTH ANALYSIS OF 164 CASES

Multiple foreign bodies	1
More than one attempt to remove F. B.	7
Failure to remove	5
Number expelled by coughing	4
Number passed into stomach and recovered	14
Youngest patient	One month
Oldest patient	Seventy-six years
Duration of foreign body	One-half hour to seven years

Patient: R. E., Age five years. Foreign body: safety pin, point up in larynx. Sojourn: eight days.



Patient: Age fifteen years. Banjo screw head in left inferior lobe bronchus. Duration three years. Condition diagnosed as tuberculosis and admitted to tuberculosis sanatorium where X-ray examination revealed presence of foreign body.

FIFTH ANALYSIS OF 164 CASES

Number of open safety pins point up in esophagus	8
Number of open safety pins point up in trachea	2
Number of open safety pins point up in larynx	2
Number of portions of safety pins in bronchus	1
Number of closed safety pins	1
TOTAL	14
Number passed by bowel	4
Number removed endoscopically	9
Number coughed from larynx	1
TOTAL	14

SIXTH ANALYSIS OF 164 CASES

Mineral Kingdom

Clip binder (Chicago screw post)	1
Button	1
Metal portion of lipstick	1
Suit-case rivet	2
Metal screw from banjo	2
Shoe horn	1
Safety pins	14
Straight pins	8
Small bolt	1
Metal top from horn	1
Piece of wood	1
Piece of lead	1
Coins	2
Coin (dime)	1
Coin (French penny)	1

Coin (penny)	4
Coin (nickels)	4
Coin (quarter)	3
Small nail	1
Small tin ring	1
Tobacco tag	1
Brassiere hook	1
Dental plates	2
Mattress tacks	2
Shipping tack	1
Carpet tacks	2
Nails	2
Portion of lamp chimney	1
Piece of wire screen	1
Portion of safety pin	1
Fibrinous cast	1
Glass beads	3
Jack rocks	2
Copper rivet	1
Pipe stem	1
Piece of wire	1
Twig of cedar shrub	1
Overall buttons	2
Animal Kingdom	
Squirrel bone	1
Vertebra of squirrel	2
Fish bones	9
Chicken bones	19
Bolus of meat	13
Bolus of food	1
Turkey bone	1
Beef bone	2
Chicken gizzard	1
Vegetable Kingdom	
Nut shell	5
Peanuts	12
Piece of apple	1
Piece of wheat beard	1
Whole grain of corn	7
Cockle burr	1
Pinto bean	1
Piece of coconut	1
Splinter of wood	1
Portion of corn cob	1
Coffee grains	2
Husk of peanut	1
Beans	2
Watermelon seeds	2
Chestnut	1
Piece of grass seed	1

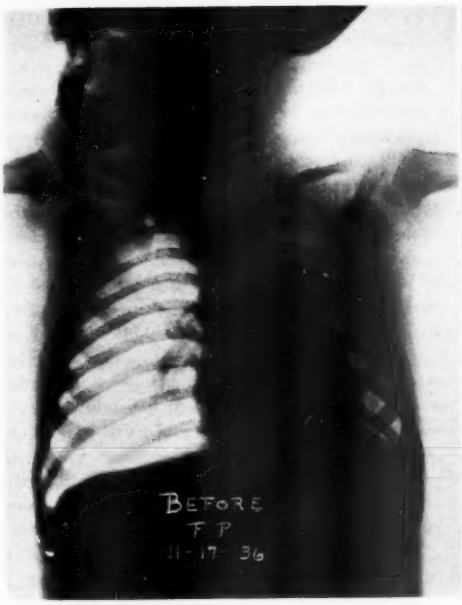
Table three gives ten tracheotomies prior to bronchoscopy. All of these cases were in a dyspneic condition when admitted to the hospital. Tracheotomy was done for relief of dyspnea and not for removal of foreign body. If the patient's condition permits, we remove the foreign body immediately following the tracheotomy; otherwise, we wait until conditions are favorable for bronchoscopy. In only three cases was tracheotomy necessary following bronchoscopic removal of a foreign body in a child. In children under three years of age, laryngeal swelling sufficient to demand a tracheotomy often develops after bronchoscopy, especially in cases of organic foreign body. This complication can be reduced to a large degree by following four definite procedures, namely, relaxation of patient: *Do not* use over size bronchoscopic tubes, *do not* prolong the operation; perfect team work. This can only be expected where all members of the group are well trained in bronchoscopy. Personal pride should always bow in interest of the patient. Ten to twenty minutes is enough time for a child under two years of age. Tracheotomy for removal of foreign body was done in two cases. There are certain cases such as large irregular foreign bodies which should be removed through the tracheotomy wound rather than undergo the very certain possibility of stripping it off when attempting to remove it through the swollen and narrowed glottis. This complication may result in sudden dead from asphyxiation.

We have abandoned the idea that anesthesia, local or general, is unnecessary in children. Our policy is to give some form of anesthetic in every case that is not dyspneic. We obtain muscular relaxation either by use of morphine with atropine or sodium amytal per rectum, supplemented with ether if necessary, being *mindful never to completely abolish the cough reflex.* We feel confident better work and less traumatism will occur under muscular relaxation which is impossible without some degree of anesthesia. We have never had a patient to develop penumonia following bronchoscopy under ether anesthesia, nor have we had a patient develop pneumonia following a tracheotomy.

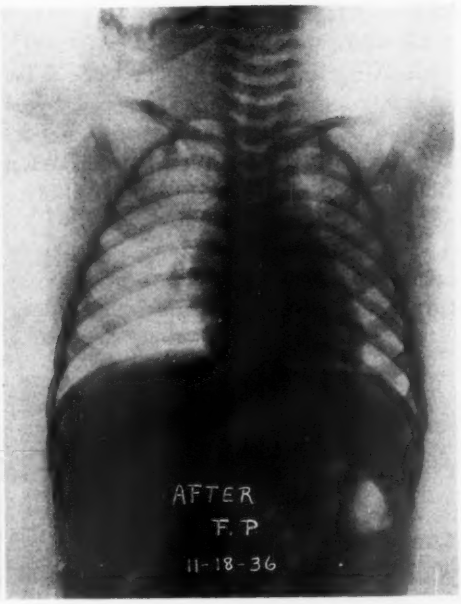
CONCLUSIONS

A large percentage of all foreign bodies occur in children under five years of age. We have found tracheotomy necessary in only three cases following bronchoscopy. This low percentage has been due to the observance of four of our bronchoscopic fundamentals, namely:

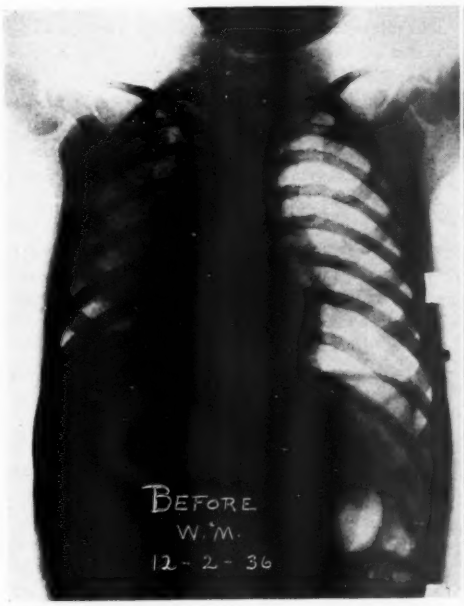
1. Proper size tubes with the head held in the correct position.
2. Muscular relaxation.



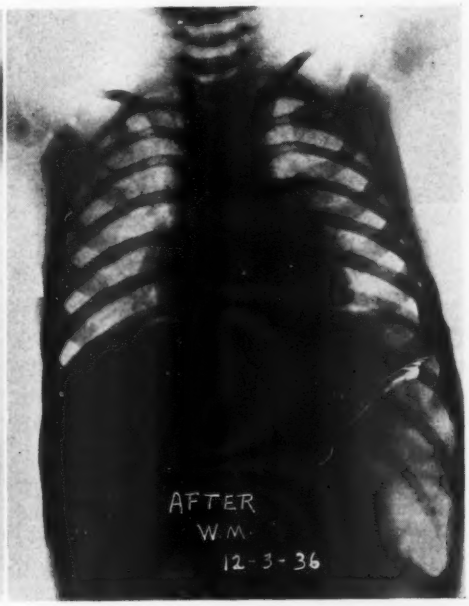
A. Patient: Age eleven months. Before bronchoscopical removal of small rock from right bronchus, causing obstructive emphysema. Note increase transparency of right lung. Heart displaced to left, right side of diaphragm pushed down.



B. Same patient after bronchoscopical removal of foreign body. Note heart, lungs and diaphragm in normal position.



A. Patient: Age seventeen months. Before bronchoscopy, showing portion of peanut in left bronchus causing obstructive emphysema. Note increased transparency of left lung, heart displaced to left. Left diaphragm pushed down.



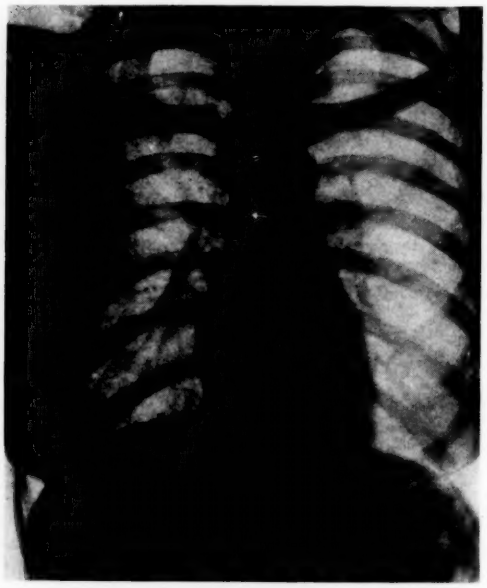
B. Same patient after bronchoscopy. Note heart, lungs and diaphragm in normal position.

XUM

3. Short working time.
4. Team work.

Esophageal foreign bodies as a rule lodge at the level of the first constriction, the crico-pharyngeus muscle. Open safety pins, point up, are easily removed if above the crico-pharyngeus muscle. When below this point, they usually pass into the stomach and are recovered from the bowel.

It is perfectly safe to leave the foreign body (open safety pin) in the stomach for three weeks if X-ray at intervals show the point in different positions. Open safety pin, point down does not constitute a



Patient: Age fifteen years. Foreign body: Straight pin in right upper lobe bronchus.

mechanical problem. We have had fourteen cases of open safety pins in the air and food passages and no deaths. Three passed into the stomach and were recovered, one in a thirteen months' old baby, the others in children three years of age.

Those of you who have had experience in this work will agree, I am sure, when I say that there is no branch of surgery or medical practice that requires the same degree of precision, promptness and accuracy in the recognition of anatomical landmarks and *co-operative* team work as does endoscopy. It is not a "one man job."

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DISCUSSION

DR. E. TRIBLE GATEWOOD, Richmond: There are few conditions that produce more mental and physical distress than a foreign object in the respiratory tract. Seventy-five per cent of foreign bodies removed from the air and food passages are from infants and children.

The majority of foreign bodies removed from the bronchi in children are of vegetable origin and non-radio opaque. It is of this type of case that I especially wish to emphasize the importance of a careful physical examination, because a prolonged sojourn of substances of this nature in the bronchial tree lends itself to lung complications and difficult removal. The promptness with which this type of foreign body should be recognized and removed is only attested by high mortality when dilatory measures are used. A large proportion of such cases may be diagnosed by the initial history of choking, gagging, violent coughing and difficult breathing. However, many of these little patients are alone when they inspirate the object, and are too young to relate what occurred.

There are certain locations in the respiratory tract where foreign bodies lodge and cause sufficient physical signs alone to warrant a probable diagnosis in the absence of a classical history or X-ray films. These areas consist of the trachea and the two main bronchi. Non-opaque foreign body in the trachea must be diagnosed by physical signs and symptoms alone. The "palpatory thud," "audible slap" and the "asthmatoid wheeze" are pathognomonic. Foreign body in the trachea is frequently movable and causes constant cough and wheezing, which is not as likely to occur when the object is fixed in the bronchus.

Non-obstructive inorganic objects which are stationary may sojourn in the bronchial tree for weeks or months with few or no symptoms. However, obstructive or non-obstructive vegetable objects will manifest increasing signs and symptoms from the onset.

The physical signs of unilateral bronchial obstruction secondary to foreign body are very helpful in arriving at a diagnosis at the bedside. However, the X-ray findings may also be helpful, even though the foreign body cannot be visualized on the films.

The bronchi are not tubes of constant caliber: they dilate during inspiration and contract during expiration. Furthermore, the lumen may be swollen and narrowed by irritating objects.

The physical and X-ray signs are dependent upon the degree and location of the obstruction which alters the aeration of the subjacent lung. Jackson and Manges describe three definite types of bronchial obstruction which present constant physical signs. They are classified as "partial obstruction," "expiratory obstruction" and "complete obstruction".

In order to illustrate my point I should like to show four slides* representing patients with various types of bronchial obstruction, secondary to foreign body.

*Illustrative slides were shown.

SLIDE No. 1 depicts the chest of a small child with a watermelon seed in the right main bronchus. Due to the shape of the seed there was equal ingress and egress of air through the bronchus. The film taken at the end of inspiration is very much the same as the one taken at the end of expiration: both are essentially negative. The physical signs in this case, however, were quite different. There was limitation of expansion on the affected side. The percussion note and breath sounds were impaired and snapping rales were present.

SLIDE No. 2 represents a child's chest with a portion of a peanut in the right main bronchus, illustrating an "expiratory obstruction." Due to the shape of the foreign body it partially occluded the bronchus on inspiration when the bronchus expanded and completely occluded it on expiration when the bronchus contracted. Therefore, we have a picture of obstructive emphysema produced by air trapped in the invaded lung. Note the difference in density and the displacement of heart to the opposite side. The physical findings in this case were marked impairment of expansion on the affected side, tympanitic percussion note, partial or complete absence of breath sounds, no rales, and heart displaced to opposite side.

SLIDE No. 3 shows a foreign body in the left main bronchus, producing "complete obstruction" of the lumen and collapse of the entire lung. The physical findings in this type of case are obvious: No expansion on invaded side; flat percussion note; no breath sounds or rales, and heart definitely displaced toward invaded side.

SLIDE No. 4 represents an infant chest with foreign body in the mouth of right upper lobe bronchus, causing complete obstruction and collapse of the upper lobe only.

The physical signs were similar to the preceding case, but the involvement of a single lobe area is always likely to give less classical signs than if involvement was of the entire lung.

THE PHYSIOLOGY OF THE CLIMACTERIC SYMPTOMATOLOGY.*

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We may define the natural climacteric as the period of transition from a state of fertility to one of sterility.

In this regard it seems worthy that the terms "change of life," "critical age," "climax" or "climacteric" more aptly describe the transition than does the word "menopause." By custom of usage the menopause has come to imply not only menstrual cessation, but all other symptoms that characterize this age. The menopause, it is true, is the most apparent sign of this period, yet it is but one of the many changes that occur. Because of the very definite meaning the word "menopause" has, one of the more general terms such as the "critical age" or the "climacteric" may be preferred.

The most prominent signs and symptoms presented at this age are dispositional changes, the menopause, sterility, suffocations, obesity, circulatory changes and changes in hair and voice.

The element most common to the disposition of the climacteric woman is emotional instability. There is an increased nervous tension. The emotional state of the woman is not proportionate to nor always in keeping with the stimulus which causes it. No better description of the change in the psychic state can be found than the following quotation by Maranon. The words are those of a very observant woman who had been seized by the disturbances of an early climacteric.

"Why has my character changed so much? Formerly I was calm and now a vexation or an injustice produces in me such discomposure, so strong an emotion dominates me that others can tell it by the tremor in my voice. And I especially notice what seems to be a feeling of anguish, a sensation like oppression as if my heart would leap from my breast. What worries me most is that this above emotionalism is not related to cause since, if I hear something sad, no matter how sad it may be, my usual composure is not altered in the least. Why am I fearful if nothing threatens? My greatest diversion used to be to walk alone to my house in the country and to be left there in peace. Now I go as before, but when I find myself alone, I am afraid and not of anything, but rather of myself."

The fear of insanity is paramount in the mind of the climacteric woman. Involutional melancholia represents but 2 per cent of all mental disease and 50 per cent of those so affected recover. The great concern existing in regard to insanity is not justified.

The menopause usually occurs between the forty-fifth and fifty-fifth years. Observations on the types of menstrual cessation indicate that 14 per cent of

*Read before the Southside Virginia Medical Society, September 18, 1936.

women experience an abrupt cessation of menstruation. In 26 per cent there is a gradual and progressive cessation. In 24 per cent the flow decreases irregularly and in 36 per cent there is excessive bleeding. The menopause usually, but not always, marks the end of a woman's reproductive life. The libido also remains. Possibly it is because the fear of pregnancy no longer exists that some women derive from their sexual lives a satisfaction never before known.

By some men, the withdrawal of sexual function is considered to be of possible relation to the high incidence of uterine cancer of this age. The progress made in the diagnosis of early cancer of the uterus has not been rapid. The mental state of the climacteric woman is certainly favorable to cooperative investigations of any suspicious signs.

Frequently the most disturbing and distressing incidents of the climacteric are the so-called "hot flushes" or "hot flashes." These are described as waves of heat that pass upward over the body. They may be accompanied by a flushing of the skin, sweating and dizziness. Their frequency and duration are variable. Frequently they are evoked by emotional states.

It is the usual concept that a woman may anticipate a gain in weight following the climacteric. This may or may not be true. In a small series of 282 women, 121 gained in weight after the change. The remainder or 161 either maintained the preclimacteric weight or lost weight.

A rise in blood pressure, palpitations and tachycardia are frequently noted in the climacteric woman. These in many instances are of a transitory nature and their occurrence is attributed to the changes of this age.

At the time of the climacteric, the voice frequently takes on a heavy, masculine voice quality. Ectopic hair appears upon various parts of the body, chiefly upon the upper lip and chin. The woman may assume an aggressiveness that she has never previously possessed.

It is interesting to consider the physiology of these climacteric readjustments. It has been aptly said that what we do not know about the glands of internal secretion does not bother us, but rather that which we know that is not true. As the following discussion involves the endocrines, it is perhaps well to keep this thought in mind. We may safely say that there is an extinction of ovarian activity at the menopause. The glands shrink. Ovulation no longer occurs. Thus, there is no further elaboration from the follicle or corpus luteum. The menopause itself and sterility are attributed to the cessation of ovarian activity. There is a third type of ovarian tissue, the interstitial tissue, which may conceivably continue to function. Extinction of ovarian activity should result in some imbalance of the endocrine system. Let us see what evidence there is in support of this.

The thyroid gland is frequently disturbed at the times of puberty, menstruation and pregnancy. These are periods of ovarian activity. Hypothyroidism and hypo-ovarianism are frequently seen together. The thyroid atrophies if man is castrated prior to puberty. Experimentally, it is easier to induce symptoms of hyperthyroidism in castrated rabbits than it is in those that have not been castrated. This would suggest that the ovary serves as a buffer to thyroid over-action. The incidence of hyperthyroidism is greatest at the end of the third decade. There is, however, a definite though lesser increase in the incidence of hyperthyroidism at the beginning of the fifth decade of life. The increased nervous tension of the climacteric woman may be due in part to a real or relative state of hyperactivity of the thyroid following the withdrawal of ovarian function. The emotional reaction produced by the menopause following bilateral oöphorectomy is increasingly worse as it approaches the time of the natural climacteric. The thyroid gland may play a part in the appearance of hot flushes. Post-climacteric weight will surely be markedly influenced by thyroid function. Its influence should also be suspected as wholly or partly responsible for the tachycardia, rise in blood pressure and palpitations.

The suprarenal glands are related to sex function. Their cortex is a factor in the evolution of sex morphology. Tumors of the cortex cause signs of virilism to appear in women. The body becomes hairy and the voice deepens. By the medullary portion of the gland, suprarenin is elaborated. Twelve months after castration of rabbits there is an increase in the size of the suprarenal glands. From the clinical standpoint it is the consensus of opinion that during the climacteric the suprarenals function in a state of real or relative hyperactivity for a period of a few months or years. Thus, if we accept these glands to be in a state of hyperactivity, we may conclude that they, too, play a part in climac-

teric symptomatology. To an increased cortical activity we may ascribe the signs of virilism that appear at this age, namely, the change of voice and the ectopic hair upon chin and lip. If, due to an increased activity of the adrenals, there be in the blood stream an increased amount of suprarenin, the sympathetic nervous system will be stimulated by it. The James-Lange theory of emotions is to the effect that an emotion is the perception of a visceral state and not of a situation. We are familiar with the apprehension, agitation and nervousness that sometimes follows an injection of adrenalin. The climacteric woman is emotional without reason. It may be that increased amounts of suprarenin in the blood of the climacteric woman are indeed producing visceral changes which she perceives. She is, therefore, experiencing an emotion for which there is no apparent cause. The stimulation to the heart by adrenalin need be but mentioned. The flushes are certainly neuro-circulatory phenomena and in the production of these, the suprarenal glands may well have a part.

The pituitary gland is also vital in sex morphology. While the ovary is certainly regarded as the female gland of sex, it seems that the pituitary is becoming recognized as being more and more important. Hypofunction of the anterior lobe prior to puberty may result in infantile genitalia, sterility and an absence of secondary sex characteristics. Post-adult hypofunction of this lobe causes a tendency to dysmenorrhea, oligomenorrhea, metrorrhagia and sterility. Indeed, the pituitary gland seems to be just as vital in genital development and functions as is the ovary. Throughout a woman's reproductive life these two glands work together towards a common goal. Following the climacteric, this phase of pituitary activity is no longer necessary. It would thus seem logical to assume that a retrogression of activity of the anterior lobe of the pituitary occurs. The part that this gland may play in climacteric symptomatology is pure conjecture. We have come to look upon it as the motor to the ovary and it is indeed possible to think that it may in part be responsible for the ovarian atrophy and thus for the menopause itself.

Support to the view that the climacteric is a pleuri-glandular rather than a uni-glandular change is furnished by the therapy that may be usefully employed at this time. Belladonna, the action of which is upon the para-sympathetic system, is used to advantage. The estrogenic principle elaborated by the ovary will frequently benefit a disturbed psychic state and cause flushes to become less objectionable. Excessive blood loss during the menopause when of a purely functional nature can in about 40 per cent of the cases be controlled by administration of the anterior pituitary principle.

If we accept as a definition of the climacteric the natural transition from a state of fertility to one of sterility, men must also pass through such a change. The biologic foundation of the female climacteric, namely, genital decadence and a gradual readjustment, exists also in the male. We need not expect that these periods in the different sexes will manifest themselves alike. In both sexes, however, there are signs of this age.

Any remarks concerning the mechanism of climacteric symptomatology are necessarily inconclusive. It is desired to bring to your attention the probability that a pleuri-glandular readjustment takes place at the climacteric rather than simply a mere extinction of ovarian function.

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APPENDICITIS.*

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The term appendicitis, coined by Fitz in 1886, has been the most important term in general surgery, certainly for the past few decades. In recent medical literature, there have been almost as many articles on this subject as there have been operative clinics. However, due to the appalling mortality rates, it hasn't seemed that too many articles could be written on it.

This paper is an attempt to present a picture of appendicitis as it is in this country today (including a

*Read before the Seaboard Medical Association of Virginia and North Carolina at Tarboro, N. C., December 1-3, 1936.

few statistics from the James Walker Memorial Hospital of Wilmington, N. C.), and to emphasize the possibilities of reducing the high mortality.

Statements concerning the appendix were supposed to have been made in ancient times, but there was no definite existence of any such knowledge until the Renaissance when inscriptions were made referring to "the worm of the bowel." Though Pare and Vesalius, in the sixteenth century, separately described the appendix, both calling it the "caecum," meaning "blind pouch," it was not until 1710 that Verheye coined the term "appendix vermiformis." In 1848 Hancock, of London, operated on a patient and removed the appendix before abscess formation, the only other operations having been incision and drainage after the abscess had formed.

From here on the history of appendicitis became largely American, beginning with the coinage of the term "appendicitis" by Fitz. One year later, Morton, of Philadelphia, did the first deliberate and successful operation for appendicitis during the quiescent period. In 1889, McBurney described the pathological changes and advised early operative interference. Fowler published the first American book on appendicitis in 1894, and in 1901 described his position for patients in the treatment of appendicitis complicated by peritonitis. John B. Murphy, in 1904, introduced his method of administration of fluids by rectum in cases of peritonitis and stressed immediate operation in cases of acute appendicitis. The same year Oschner introduced his famous expectant treatment in cases of peritonitis.

Around this time the custom of prophylactic appendectomy started, and by 1913 the appendix was considered a disturbing factor in almost every abdominal condition and was being removed on the slightest indication, often quite indiscriminately. During this period, however, there was an obvious advance in the perfection of the surgical technic. By 1918, there was a marked trend away from the indiscriminate use of the operation appendectomy, with the mortality statistics causing the practice of prophylactic appendectomy in extensive operations to be almost discarded. The pendulum, as usual, continued to swing away from its previous direction until appendectomy in many clinics was in much disfavor. The names of many men have been associated with the subject of appendicitis in the two decades from 1910 to 1930. Among them are McCarty, Paterson, Andre, Moynihan, Roux, W. J. Mayo, C. H. Mayo, Adami, Rosenow, Balfour, Horsley, Deaver, Codman, Coffey and Moschowitz. To these men we owe a debt of gratitude for carrying the subject of appendicitis through that period of indiscriminate operation, with its resulting antagonistic reaction, to the present time when apparently the subject has been placed on a level headed and common sense plane between the above two extremes. Among the names read in any history of appendicitis, one seems to stand out. To quote Collins: "The name of one man, during the last forty years, stands preeminently above all others in the field of appendicitis. The medical world owes a debt to Deaver who has placed the treatment of appendicitis on such a firm foundation that it is now common knowledge, even to students who are beginning their medical careers."

The statistics on appendicitis in recent literature are too numerous to even attempt to cover as is shown by the fact that nine hundred or more articles have been published on that one subject in the past five years. However, by summarizing several of the most typical articles and comparing their contained statistics, a fairly comprehensive picture of appendicitis, its progress, and its back sets during the past few decades may be obtained.

There is a definite increase in the death rate from appendicitis in the United States from year to year, and, though there is also an increased mortality in the other countries where appendicitis is common, the United States, as in maternal and fetal mortalities, leads the field. In recent years the number of deaths in this country has been around 25,000 annually, the death rate from this condition increasing from 11.4 per 100,000 in 1910 to 18.1 in 1930.

In an attempt to get a general mortality picture, the statistics in several articles are herein averaged, the statistics being gathered from records of varying years during the past three decades. Three articles on general appendicitis include 6,673 cases with an average mortality of 2.54 per cent. Eleven articles on acute appendicitis include 21,981 cases with an average mortality of 5.17 per cent. Five articles including 16,850 cases show an average operative mortality of 2.33 per cent.

TABLE No. 1

ACCUMULATED STATISTICS FROM ARTICLES

25,000 deaths from appendicitis in the U. S. annually.
11.4 deaths per 100,000 in 1910.
18.1 deaths per 100,000 in 1930.

Mortality in general appendicitis:
3 articles—6,673 cases—2.54% mortality
Mortality in acute appendicitis:
11 articles—21,918 cases—5.17% mortality
Operative mortality in appendicitis:
5 articles—16,850 cases—2.33% mortality

As to sex, the average picture reveals little difference as to frequency in the male and in the female, being possibly a little more frequent in the male. However, the mortality is in almost every instance at least one-third higher in the male. One view as to the cause for this is that the peritoneum of the female is more resistant to infection because it is more inured to the absorption of bloody fluids incident to the menstrual cycle. Another theory is that the feminine sex seeks medical advice much earlier than the masculine as proved by the fact that, though the incidence is about the same in both sexes, only about 30 per cent of the cases requiring drainage are of the female sex.

The average age in which appendicitis occurs is twenty-five years. Two-thirds of the cases occur in the second, third, and fourth decades, while two-thirds of the deaths occur in the first decade and after the fourth. The mortality of acute appendicitis runs around 12 per cent in the first decade; 1 per cent in the third decade; and 42 per cent in the seventh decade, showing an unusually high mortality in the two extremes of life, the mortality in the extreme ages being in direct proportion to the incidence of complications. Eliason finds in his series that 94.1 per cent of the cases under five years require drainage and 100 per cent of the cases over fifty-five years. Maes finds 73 per cent of the cases below twelve years complicated at operation and 77 per cent of the cases over forty years.

TABLE No. 2

STATISTICS FROM ARTICLES ON APPENDICITIS AS TO AGE
⅔ cases of appendicitis in 2nd, 3rd, and 4th decades.
⅔ deaths in appendicitis in 1st decade and after 4th decade.
Acute Appendicitis:

First decade	12% mortality
Third decade	1% mortality
Seventh decade	42% mortality

As to race, the mortality rate is twice as high among the negroes as among the whites, but appendicitis is six times more common among the white patients than among the colored. Appendicitis in negroes seems to be increasing as the negro takes on the fashions and customs of civilization; however it remains much more grave in the negro. Boland, of Atlanta, finds a mortality of 3.6 per cent in cases of acute appendicitis among the whites and 14.0 per cent among the colored. He accounts for the higher mortality partly by the fact that negroes delay more in going to the hospital and also that the history of huge and repeated doses of laxatives is so prevalent among the cases in negroes. Another cause for the high mortality is the negro's apparent low resistance to the acute infections after he once contracts them.

Time is an extremely important factor in the high mortality from appendicitis. In fact, the time between the onset of symptoms and the operation is proportionate with the mortality in the acute cases. The average mortality in the acute unruptured cases is around 1 per cent, while the cases that have reached the stage of peritonitis have a mortality of from 15 per cent to 68 per cent in the various clinics. The percentage of perforation increases proportionately with the increase in time between the onset of symptoms and admission. An average of 20 per cent of the acute cases are found perforated at operation. A perforated appendix, of course, means peritonitis either local or general. Keyes, of St. Louis, finds that thirty-seven out of sixty-two deaths are due to peritonitis. Boland finds peritonitis the cause of 60 per cent of the deaths; Bower, 76.48 per cent. Reed, Poer, and Merrell find that 98 per cent of the deaths in their series are due to complications of perforation such as peritonitis, abscess, ileus, and intestinal obstruction, whereas, Bower finds that conditions arising in organs not caused by a pathological process in the appendix are responsible for only about 0.45 per cent of the deaths. Reporting 5,121 cases of acute appendicitis, he shows in that series that the time elapsed from the onset of symptoms to operation in all the cases averaged from 61 to 81 hours while the time elapsed in those who died averaged from 95.6 hours to 153 hours. He shows that one in thirty-nine cases dies if operated on in the first twenty-four hours; one in seventeen within forty-eight hours; one in thirteen within seventy-two hours; one in nine over seventy-two hours. These statistics show only too plainly the relation time has on the increase in mortality in appendicitis.

The part played by laxatives in the mortality rate is quite a large one, and the statistics in literature profuse. Bower finds that without an exception, the

patients developing a perforation with fulminating peritonitis before twelve hours have had laxatives. 98.4 per cent of the deaths in his series from general peritonitis, in which a definite history of laxatives has been obtained, have had them. Boland finds that 15 per cent of those who receive laxatives die. Finney finds that in the cases where a definite statement has been obtained, 61.54 per cent of the cases of ruptured appendicitis with peritonitis have had them. Maes, Boyce, and McFettridge in their series of children find that 40 per cent of their total mortality group have had them. Eliason and Ferguson seem to have the only series in which figures show little difference with laxatives. Reed, Poer, and Merrell find that 36 per cent of the cases had taken laxatives and that 34.3 per cent of the acute cases that had taken them had perforated.

Our series consists of those cases operated on for appendicitis in the James Walker Memorial Hospital of Wilmington, N. C. in the seven years from 1929 through 1935. In the 2,219 cases, those of incidental appendectomy have not been included. However, in some instances plastic work or some pelvic procedure has been done; but, from the records, this has been considered by the operator to be incidental to the appendectomy so we feel that these cases should be included. Several cases in the series, one of which died, show an undetermined postoperative diagnosis, but the operation was appendectomy so these cases have been included also. None of the cases of appendicitis which were not operated on have been listed.

Out of the 2,219 cases there were twenty deaths or a total mortality of 0.9 per cent. The mortality in the acute group of 1,192 cases was 1.51 per cent, and in the chronic group of 1,027 cases, including the subacute group, a mortality of 0.29 per cent. The mortality in the 121 ruptured cases was 7.4 per cent. Of the twenty deaths, sixteen occurred in the acute group; two in the subacute group; one in the chronic group; and one undetermined case. Of the sixteen deaths in the acute group nine had ruptured. In all of those nine cases the duration was over twenty-four hours, running from thirty hours to ten days. Of the secondary causes of death peritonitis, paralytic ileus, and cardiac complications each caused five; pneumonia three; intestinal obstruction one; and the cause of death in one case undetermined. Both of the deaths in the subacute group were caused by cardiac complications and the one in the chronic group by paralytic ileus. The ages of the cases dying ranged from four years to seventy-five years of age, with only five cases occurring in the two decades from twenty to forty years. Nine different surgeons operated on the twenty fatal cases, three of the surgeons being residents.

TABLE No. 3

CASES OF APPENDICITIS IN THE JAMES WALKER MEMORIAL HOSPITAL, 1929-1936

GROUP		CASES	DEATHS
Acute Group	acute	926	3
	gangrenous	145	5
	ruptured	103	5
	abscess	18	3
Subacute		660	2
Chronic		367	1
Total		2,219	19

One death in the undetermined group.

These statistics pretty well agree with those compiled from various articles from clinics throughout the country, the mortality rate in our series, however, being somewhat lower than most of the others. The reason for this low mortality rate wo do not profess to know.

TABLE No. 4

DEATHS FROM APPENDICITIS IN THE JAMES WALKER MEMORIAL HOSPITAL, 1929-1936

Acute cases	16 deaths
Subacute cases	2 "
Chronic cases	1 "
Undetermined case	1 "
Total	20 "
Total Mortality	0.905%
Acute Mortality	1.51%
Chronic Mortality	0.29%

In reviewing the present-day statistics of appendicitis the most outstanding fact is that though appendicitis has been an acknowledged surgical condition for fifty years and that the treatment has been on a sound basis for thirty years, the mortality rate is greater than it was twenty-five years ago. It is true that the percentage death rate in operated cases has decreased and that the number of cases diagnosed and operated early has increased remarkably. However, the total mortality of approximately 25,000 deaths in this country annually remains. It is rather obvious from the preceding statistics that at least four-fifths of these deaths are unnecessary. Our personal opinion is that these 20,000 or more deaths are due entirely to neglect, though not intentional.

The other 5,000 cases are justified in that they are due to operative accidents, unavoidable postoperative complications, and emergency operations in very poor risks. The negligence in these cases of unjustifiable deaths from appendicitis should be attributed to the patient or the patient's parent in the case of a child, the family doctor, or the surgeon. The druggist should be included in this accused list of neglectful parties in many cases, because he so often prescribes laxatives for abdominal upsets when he should advise the patient to consult a physician. John B. Murphy made the statement that "In every death from appendicitis somebody is to blame."

The main fault in the present control of this condition seems to be in the lack of the education of the patients. Several attempts have been made towards this education with only slight results because the attempts have not been widespread enough nor enough publicized. As Bower states, the surgeon cannot be blamed too much when 80 per cent of the deaths are due to complications as a result of delay and laxatives. Bailey finds that 99 per cent of the fatal cases have been home treated, not with intentional neglect but because of ignorance, fear of hospitals and operations, and economic conditions. If the mortality rates from appendicitis are to be decreased, the public must be thoroughly educated as to the importance of early operation and the danger of the use of laxatives.

While it is true that the greater part of the mortality is due to factors originating outside of the hospital, the present-day surgeons, as a group, are not entirely without blame. During the past two decades in which there have been so many advances in surgery, there have been very few lasting advances in appendiceal diagnosis and treatment, particularly in the treatment of appendiceal complications, Bower's statement that the mortality from appendicitis decreases with the experience of the surgeon, especially in the case of general peritonitis, has been upheld by statistics, but the mortality even in the most experienced hands seems still too high. In recent years there have been many innovations in the treatment and diagnosis of appendicitis, but there has been very little accepted change in the routine treatment since the introduction of the Oschner treatment for peritonitis and the proven advantages of the small incisions. The most important argument at the present time is the one concerning drainage and nondrainage in the ruptured cases. Many worth while points have been advanced by quite capable men in favor of nondrainage, but the general trend of opinion remains in favor of the old dictum "when in doubt drain." Bevan's feeling that most of the literature written in favor of nondrainage has been written by men with limited clinical experience or on a basis of experimental work on animals cannot be agreed with when we see such names as Shipley, Torek, Roth, Muller, and many others in articles in favor of nondrainage. Appendicostomy, retro-peritoneal drainage, rectal drainage, and other procedures have had their advocates but have not yet been proven to the satisfaction of most surgeons.

In conclusion, may we say that in this condition, which causes the most frequent surgical procedure, there is a desperate need for control. It is an acknowledged fact that appendicitis is increasing in frequency with a proportionate increase in mortality. The need is imperative for an extensive education of the public as to the dangers present, for the education of the future surgeons as to the importance of immediate surgical intervention, for the advancement and improvement in the present treatment of the complications, and for the full understanding of all concerned of the opportunity for life saving in this condition.

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STERILITY IN THE FEMALE.*

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In a day when the lay and medical press emphasize the virtue and evil of contraceptives, it might seem somewhat amiss to discuss the causes and treatment of sterility. Nevertheless, sterile matings are the source of many heartaches. And to my office there come as many seeking a baby as those who would forestall the blessed event.

*Read before the Fourth District Medical Society at Hopewell, Va., November 10, 1936.

Approximately one in ten marriages is sterile. What may we promise the woman who comes to us seeking cause for her unhappy state. In the first place, it must be made clear to the woman that there is a certain definite plan to be executed which will require five to seven office visits. It must further be emphasized that husband and wife cooperate and that even with this ideal arrangement their effort

has only one chance in three of being rewarded. For scientific accuracy and to secure domestic bliss, it should also be advised that sterile matings are almost as frequently the male's responsibility as that of his female partner.

A medical history is now in order. It should simply inquire three things: (1) Has there been any venereal disease on either side? (2) Are there any genital symptoms at present in either party? (3) Inquiry as to whether the sex act is being completed satisfactorily. Any leads from this source must be followed to determine genital pathology of either party.

In the male, examination of the seminal fluid and passage of the urethral sound will convict or exonerate him in most cases. The woman is not examined on the first visit, but instructed to return one week later immediately following sexual intercourse after a week of abstinence. Through the vaginal speculum, seminal fluid is pipetted from the vault of the vagina and examined immediately. Two things are looked for—motility and shape of the sperm head, the second after staining with methylene blue. If one-quarter of the sperm are immotile, or show abnormal shape of the head, the male is definitely under suspicion. If the fault lies in motility, thyroid therapy is indicated. If it lies in abnormal morphology, the gonad-stimulating hormone from pregnant urine—commercially antuitrin-S—is indicated.

Granted the husband is not to blame, our attention returns to the female. The most common cause of sterility here is the result of chronic endocervicitis. The mucous plug which always accompanies this condition refuses entrance to the spermatozoa and is not soluble in seminal fluid as formerly thought. The treatment is linear cauterization of the cervix and this simple procedure alone will frequently reward the patient with subsequent pregnancy. If the cervix is found to be normal, one then looks to the uterus. Infantile uterus or hypoplasia of the organ accounts for some female sterility and is usually associated with scanty menses. Injection of theelin, 1000 rat units biweekly, acts directly on uterine muscle and produces a hyperplasia. Perhaps neither cervix nor uterus are abnormal. Then a study of the tubes is indicated. If palpation reveals nothing abnormal, we have at our command the Rubin test. The principle here is insufflation of air into the tubes and one knows by experience that in the patent tube air pressure will go to about 150 mm. mercury and then drop as the air escapes into the peritoneal cavity. In the occluded tubes pressure goes to 200 mm. and does not drop. To facilitate this, I have devised a canula which can be used in conjunction with an ordinary blood pressure machine which makes a very satisfactory Rubin outfit. This apparatus can be assembled at a cost of about $5 as contrasted with the cost of $150 for the commercial machine. If tubes are abnormal lipiodol with X-ray will reveal point of obstruction. If obstruction is in the fimbria, operation will help. If the test shows the tubes to be normal, the fault may lie in the ovaries. It is our job here to determine whether or not ovulation is occurring. Women normally ovulate 15 days before the next menses. However, regular monthly bleeding does occur in a certain number of women who are not ovulating. How does one determine if the woman is ovulating? In the monkey, Hartman determines this by rectal palpation of the ovary. In the human this is not possible. However, we do have a very satisfactory means of determining it. Two days before the menses is supposed to occur, a very small curette is passed into the uterus without anesthesia and a small amount of the endometrium is removed and stained with methylene blue and examined microscopically. If ovulation has occurred 12 days previously, a corpus luteum will have been formed and the effects of corpus luteum stimulation, the so-called secretory changes, will be found in the endometrium. If these changes are not present, no corpus luteum has been functional and therefore, we assume that ovulation has not occurred. Failure to ovulate may result from 2 causes: 1. Chronic oöphoritis with a resulting thick capsule of the ovary which prevents extrusion of the ovum from the ripened follicle. 2. Deficient hormone stimulation with either the thyroid or anterior pituitary as the etiologic background.

I have also been able to show recently in a case of Addison's disease that ovulation does not occur. The adrenal cortex, then, would also seem to play its part. It is not practical at the present time to determine whether ovulation is being prevented by thickened capsule or deficient hormone stimulation. Frank and Goldberger have devised a laboratory means of titrating the anterior pituitary hormone in the circulating blood, but at present this cannot be applied clinically. In the absence, then, of ovulation, a B. M. R. should be done and thyroid and antuitrin-S

administered. X-ray of anterior pituitary furnishes helpful information.

When all of these studies have been made and still no cause for the sterility is apparent, I make one final effort. On a purely hypothetical hunch I dilate the uterine cervix on the fifteenth day before the menses and artificially inseminate the uterine cavity from the husband's semen in the vaginal vault.

Now, if all of these relatively simple studies are made and the proper therapeutic principles applied, about 33 per cent of your patients will become pregnant. It is common knowledge that these pregnancies have a tendency to abort. The reason for this is probably to be found in the defective germ plasm so frequently emphasized by Moench and others. In fact, it is not improbable that most spontaneous abortions are really potential monsters. And we are now less inclined to interfere with Nature in these spontaneous cases.

The most optimal period for fertilization probably lasts only a few hours in the mid-cycle and, when fertilization does occur outside of this narrow limit, the germ plasm, either male or female, may have undergone some degeneration and thereby account for these abnormal embryonic developments. It has been shown in the tadpole that monstrosities can be developed at will by delaying the fertilization time a few hours. Human spermatozoa possesses the power of fertilization for only eight hours and the human ovum probably has even a shorter period of fertility. The fact that sperm are found alive in the genital tract several days after intercourse is no index to their capacity to fertilize. All of this knowledge on male and female physiology is relatively recent and well confirmed. There is much more yet experimental.

I have made no attempt to cover all the aspects of this great subject. I have attempted to outline a therapeutic approach to the problem of sterility which will, if executed properly, bring desirable results.

We may conclude:

1. The male is responsible for 30 per cent of sterile matings.

2. Motility and morphology of sperm are diagnostic criteria and may be influenced by thyroid and antuitrin-S therapy.

3. In the female, chronic endocervicitis, infantile uterus, uterine displacements, occluded tubes, chronic oöphoritis, and hormone disturbances are the most common causes of sterility.

4. Ovulation occurs in the mid-cycle and fertilization is possible during a very short period of time and can be influenced by thyroid and antuitrin-S therapy.

5. The theory is advanced that abnormal embryonic development might be the result of degenerative germ plasm.

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DYSMENORRHEA—TREATMENT BY ORAL USE OF EPHEDRINE AND AMYTAL.*

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There is probably no one thing which brings more women to the physician than dysmenorrhea, or painful menstruation. Many attempts have been made to classify this condition according to its etiology, and most authorities contend that when menstrual pain becomes so severe as to disable the patient, pathology is present and should be sought for until found. However true this may be, those of us in general practice see quite a few women in whom no pathology can be demonstrated, yet who still suffer, and quite a few young girls in whom adequate examination is impossible.

*Read before the Roanoke Academy of Medicine, November 2, 1936.

I wish to report here a treatment which in my hands has proved helpful in those cases of functional dysmenorrhea. Of course no claim is made that it will help where real pathology, such as cervical stenosis or glandular dysfunction, exists.

Menstrual pain seems to be caused by the contraction of the smooth muscle of the uterus. This being true many drugs have been used to relax the smooth muscle and so relieve the pain.

The objects we have sought to attain are: (1) To relieve pain; (2) To keep the patient in condition to go about her usual duties; (3) To get entirely away from opiates or any habit-forming drugs.

The idea for this work was not original, but followed upon the suggestion of Dr. James Whitfield while I was an interne in Richmond.

It has been known for a number of years that adrenalin would relax the uterine muscle, and injections have been used to relax Bandl's ring contraction. Injections of adrenalin chloride 1-1000 (½ c.c.) were tried for relief of menstrual pain, and seemed to relieve the pain, but left the patient shaky and nervous, and certainly in no condition to go about her usual duties.

Since physiological action of adrenalin and ephedrine seems to be the same upon the smooth muscle of the uterus, ampules of ephedrine sulphate gr. ¾ were tried and a sedative given by mouth, such as phenobarbital gr. 1½. In our hands, we have not found a case of menstrual cramps which this will not relieve. Relief comes usually within ten minutes and is usually permanent. Relief is more complete than when hypodermics of morphine are used, and we have not yet had to repeat the injection during the same menstrual period.

However, it occurred to us that it might be possible to attain the same end by oral medication, since ephedrine is effective when given orally, differing in that respect from adrenalin. Accordingly, several cases in which we had been given injections of ephedrine sulphate at each period were given capsules of ephedrine sulphate gr. ⅜ and amytal gr. ¾. They were instructed to start taking the capsules as soon as there was the least indication of menstrual pain, and to continue at three-hour intervals until all pain had ceased. Since then, we have found it better to start with two capsules and repeat at three-hour intervals as necessary. Our results were surprisingly good.

An analysis of fourteen cases shows:

(1) Ages range from eighteen to thirty.

(2) All cases were improved by oral medication.

(3) Eleven cases had complete relief of pain.

(4) In three cases relief was not complete due to cervical stenosis.

(5) Cases treated: six unmarried; five married but no children; and three had one or more children.

CONCLUSIONS

Oral use of ephedrine and amytal seems to be a simple and effective method of treating functional dysmenorrhea, since it:

(1) Is effective to relieve pain.

(2) Allows patient to go about her usual duties.

(3) Does away with use of opiates.

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THE IMPOSSIBLE HAPPENS.

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A. B. was 76 years old. He stood beside a railroad track and attempted to "flag" a train, in order to board it as a passenger. Whether he became bewildered by the roar of the approaching train, or whether he decided he was on the wrong side of the track and attempted to cross over, will never be known, but in some way he was struck by the engine, and his body hurled a distance of some twenty-five yards, alighting upon the cinder surface alongside the track.

He was instantly killed, his back broken, one leg and one arm broken, and his skull crushed. The brain was ejected from the skull, a large portion of it propelled some distance beyond where the body came to rest, and, strange to say, the spinal cord, almost in its entirety, was drawn out of the verte-

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brae by what might be almost likened to a centrifugal force; it was severed from any and all attachments, and lay on the ground some ten yards from the body. And what makes it even more difficult to understand, it was lying on the *proximal* side of the body—that is, between the spot where the man was struck by the locomotive and where the body came to rest.

That a spinal cord could be evulsed from its situation in the vertebral canal by any sort of propulsive force, severing the attachments of the various spinal nerves, and emerge through the foramen in the skull intact, this seems to border upon the impossible, and yet this is exactly what happened. The identity of the structure—that is, the fact of its being the spinal cord—was verified by laboratory examination.

SPECIALIZATION—AS DISCUSSED IN "AMERICAN MEDICINE".*

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The moot question, "Is there over-specialization?", receives a due amount of attention in the correspondence resulting from The American Foundation's inquiry. The answer to the question, roughly stated, is perhaps, "There are too many poor specialists and not enough good ones." Control of the situation, in the majority view, inheres less in "control of production" methods than in a general, continuous and progressive elevation of the standards of special practice.

One contributor, for instance, points out that cutting down the number of obstetrical specialists, as a method of control, could be regarded only with humor by medical men of broad experience, since in their view the number of qualified obstetricians in the country as a whole is pitifully inadequate. A New England obstetrician, certified by the American Board of Obstetrics and Gynecology, FACS, is quoted thus:

"At the present time there are not more than three really qualified obstetricians in the State of Maine, none in New Hampshire, not more than two at the most in Vermont, and so it goes. I doubt if there are thirty-five trained obstetricians south of the Mason-Dixon line east of the Mississippi River."

In this field certainly the situation calls for emphasis rather on the development of more, and more competent, obstetrical specialists than on the restriction of those now operating. Yet it remains true that raising the standards of obstetrical practice is regarded as one of the sharpest present challenges to American medicine. One of the contributors, an outstanding leader in American surgery, a member of the American Surgical Association, states his belief that the higher maternity death rate in this country—as compared with that of Europe—is attributable to our greater tendency toward surgical interference in childbirth; in other words, it is attributable to the too limited training of obstetrical specialists, with resulting over-emphasis upon one conception and one technique.

WHAT IS A SPECIALIST?

In answering this question more than a few of the correspondents adopt a cynical tone which seems to derive reminiscently from a particular experience with specialists' practice, perhaps in the home town. "Originally," says an ophthalmologist certified by the American Board of Ophthalmology, "the specialist was a practitioner of wide experience. . . . The practice of a specialty was rather a recognition of personal experience than a formal system. Today specialization is a more certain guarantee that one knows little outside his own field than that he is really expert within it."

In similarly cynical fashion the chief physician of a New England hospital, a member of the Association of American Physicians, describes specialists who "are so only in regard to seeing patients in their homes or at inconvenient hours."

Another contributor, a member of the American Psychiatric Association, is inclined to think that "limited practitioner" would be a better name for specialists of a certain ilk: "A lot of men, usually those who have gotten tired of the real practice of medicine, and want to limit themselves to one section

*Second of six articles reviewing sections of "American Medicine: Expert Testimony out of Court"; published by The American Foundation, 565 Fifth Avenue, New York City; 1,500 pages, two volumes ($3.50 for the two volumes).

of it, or people who have never had the ability to encompass the whole subject and are looking for an easy way out, or the fellow who knows everything except the fact that he knows very little, have decided to call themselves specialists in certain lines, or have permitted the neighborhood and others so to name them. Really they are only 'anatomical region' specialists. Physiologically and pathologically they are limited practitioners."

The present willingness of both the medical profession and the public to call these limited practitioners specialists "makes for a new definition of the specialist—the man in medicine afraid to be a complete doctor and to attack a total job."

Other contributors, approaching the situation more philosophically, believe at least as firmly as do the cynics that revision of the situation is in order, but they more understandingly take into account the historical background of the present situation, the reasons for the kind of over-specialization we have at the present time and the chaos caused by lack of definition of the field and lack of definition of standards for special practice. These historians dwell at some length on the causes of the drift to specialization: first and notably, the rapid advance of scientific medicine, naturally breaking up the field into manageable areas; secondly, recognition by practitioners of commercial advantages in special practice—the public being willing to pay the specialist more than it is willing to pay the general practitioner; thirdly, allied with the point just made, the public preference for specialists—and the consequent natural tendency of the practitioner to "give the public what it wants."

One more factor included in some enumerations of the causes of the drift to specialization is the influence of the medical schools. As one dean points out, *most* of the things that are wrong with American medicine are at some point or other, by some group or other, sure to be laid at the door of the medical schools. Replying to the charge that the medical schools induces over-specialization, several writers aver that the schools are perhaps rather the victims of over-emphasis on the specialties than the cause of it. The competition for space and status by pressure groups of specialists creates in the medical school a situation that comes from without rather than from within. In general, however, a number of contributors admit that the medical schools, while certainly not the only and not the major cause of the drift to specialization, do contribute influence in that direction through their tendency to "departmentalize" medical training and thus lead students to conceive the field of medicine rather as a collection of specialties than as an integrated practice.

Clearly, the contributors to "American Medicine" fear any form of restriction or of standardization that would constitute a fundamental attack on the principle of specialization. In vigorous terms competent writers of wide experience—not all of them specialists!—point out that specialization is responsible for most of the outstanding progress in medical science. A few writers, with moving sincerity, illustrate, from their own experience, how some of their cases have been happily and effectively handled by specialists when their own efforts had been entirely unproductive. The interesting thing in this record is that the cases cited were not unusual diseases of profound origin but comparatively "simple" situations which nevertheless did not respond to the treatment offered from the resources of supposedly competent general practice. A number of writers clearly feel that if the problem of how to produce better specialists is adequately answered the other question—as to whether there are at present too many or too few—will become highly academic. The ruling out of the unqualified and incompetent will follow, it is suggested, a comprehensive definition of the fields of special practice and a comprehensive effort to define standards.

PRIMARY NEED OF DEFINING THE FIELDS OF THE VARIOUS SPECIALTIES

Until this is done, it is impossible to discuss the drift to specialization intelligently, since without agreed upon definition of the field there can be no definition of the specialist. With the present conditions of classification it would be impossible to say how many specialists there are; it is possible only to say how many call themselves specialists. A member of the American Board of Obstetrics and Gynecology observes: "Recent statistics indicate that 56 per cent of physicians acknowledge that they are doing general practice, 23 per cent claim to be specialists, and the remaining 21 per cent classify themselves as partial specialists."

A fellow of the American College of Physicians submits the following:

"From 40 to 80 per cent of recent graduates are

entering upon specialties, many without sufficient training and without the valuable clinical experience derived from general practice."

Other figures and percentages are used by other writers. Under present conditions, obviously, it would be hard to prove that anybody's guess as to the number of specialists was either right or wrong.

However contributors vary on the question of the number of specialists, they are agreed that the fields are undefined, and that a very considerable percentage of special practitioners are unqualified. A past president of the Association of American Medical Colleges and member of the American Surgical Association says:

"There is at the present time in the United States a very large number of physicians who are listed in the directory of the American Medical Association as complete or partial specialists. This runs to something in the neighborhood of 40,000 of the total number. Of these people only a modicum have had any special training or would be adjudged qualified specialists by juries of their peers."

Another writer observes: "I am informed that 20 per cent of the new college graduates nominate themselves specialists after no more polish to their brains than that afforded by the tiled floors of an internship."

Defining the fields of the various forms of special practice cannot, it is recognized, be an arbitrary process. It must follow rather than precede the work of such standardizing agencies as the certifying boards. The definition of the field will be more or less achieved by establishing, in every field, the qualifications for special practice and the forms of training required to produce those qualifications. The present chaotic situation whereby pirates in special practice add to their own field as they see fit is due to receive a check as the standardizing process and the prescription of special training proceed. The complaint of a Florida practitioner that under the present system one slice after another is being cut away from general practice until "there is nothing left but the umbilicus for the general man" will not have its present justification when the standardizing processes have been more consciously at work for a longer period.

ATTEMPTS TO CONTROL STANDARDS AND TO DEFINE QUALIFICATION

A number of methods of controlling the present situation are covered, rather intensively, by the doctors contributing to "American Medicine." While the suggestions have reference to all the specialties it is natural that a good deal of the discussion dwells especially upon surgery (generally treated as a specialty) and upon the importance of limiting the free functioning of the unqualified surgeon. While, as suggested just above, a number of methods for insuring qualifications for practice and minimum standards of special practice are mentioned, the methods fall roughly into two major groups—those that depend upon legislation and those aiming at control entirely without legislative aid. There is, of course, considerable discussion of the familiar question as to whether the time has come when it is no longer in order for the licensing laws of the states to permit a medical graduate on the basis of his general training to practice "medicine *and surgery*." The *pro* and *con* on this question are so well known that it seems unnecessary to take space to review them here. There is the usual insistence on the one hand that license to practice medicine *and surgery* on the basis of the same preliminary training and without especial—and tested—surgical qualification is the remnant of a bygone age, that the day of the emergency operation on the kitchen table is past, and that the terms of licensure should be promptly revised; there are, on the other hand, the familiar arguments that to restrict medical graduates from the practice of surgery would handicap rural practitioners and their patients, that there is no way of permitting a man to practice minor surgery and restraining him from any practice of major surgery, and that whatever change is needed in the situation must come about through the medical schools, through the professional organizations, through a better educated public opinion. Reading between the lines, one sees that objection to changing the license laws is often due to reluctance to interfere with the interests of a considerable number of "'general surgeons" or general practitioners freely practicing surgery, who have had little or no surgical training but some of whom have developed a measure of competence through "experience"—a somewhat ominous word in this connection.

Rather frequently the view is expressed that the professional organizations have not as yet satisfactorily controlled the standards of special, and particularly of surgical, practice. More than a few writers who are fellows of the American College of Surgeons express the view that the American College

of Surgeons by setting too low a standard, for membership, has failed to realize that control of the situation which it might potentially have.

Varying opinions are expressed on the certifying boards, which are discussed at length. An appendix summarizes the requirements for special training and experience in each of the twelve fields: internal medicine, pediatrics, ophthalmology, otolaryngology, obstetrics and gynecology, dermatology and syphilology, orthopaedic surgery, radiology, urology, pathology, psychiatry and neurology, surgery. Admitting the delicacy and complexity of the problem, many competent writers nevertheless believe that the boards must devise really satisfactory ways of testing not only a man's academic training but also the actual use he has made of his experience and the actual amount of competence he has realized through it. To say that a man has worked in a certain place for a given number of years may sometimes be a sufficient indication that he has become competent. The boards must learn really to evaluate statements of "experience" and estimate what degree of competence the individual has actually achieved as a result of it.

Generally speaking, the attitude of the contributors to "American Medicine" toward the work of the certifying boards is sympathetic. There is a general feeling that they are "dealing with the problem as rapidly as is wise." Even those writers who believe that in the long run some form of legislation will be needed feel that the work of the boards will be the best preparation for the legislation which, they think, must ultimately supplement their labors. A minority regards the work of the boards with tempered enthusiasm and points out that some of the boards that have been longest in existence have not, in their judgment, changed the situation in the given field.

A whole chapter might be written on the hospital as a source of standardization and control of special practice. Various contributors to "American Medicine" discuss concrete requirements for consultation in institutions with which they are associated, formal and informal methods for reviewing, continuously or throughout a probationary period, the work of men allowed to operate or undertake any form of special practice in the hospital, various devices for classifying surgeons as minor, junior-major and major and thus defining the conditions under which they may practice in the given institution. A few believe that a requirement that the hospital control the special practice and the surgery within it might and should be incorporated as a condition of obtaining the hospital's license.

When Should a Man Begin to Specialize?

This challenging question enters at various points throughout the discussion of specialization. There is a sharp alignment between those that believe, for instance, that every aspirant to special practice should have ten years (or other stated period) of general practice first, and those that believe that a preliminary period of general practice merely diverts a man from a concentrated scientific approach to his specialty and allows a dissipation of his energies and powers. The latter group recommends specialization immediately after graduation, and the continuous co-development of special practice and further study.

Attitude of the Public as a Factor in Specialization

Two points are stressed here: First, the need to educate the public out of its present tendency to revere the specialist and by the same token disparage the general practitioner (and the internist); and secondly, the need to keep the public progressively informed as the work of standardization through the certifying boards and other methods advances. There is little public interest in the question, it is pointed out, and the task of getting the public to distinguish between the approved and certified and other practitioners is, therefore, not easy. It has been a good many years since, for instance, the College of Surgeons' attempt to set up a standard, but the complaint is made that the public has never demonstrated interest in whether a man is or is not a member of the College of Surgeons. The establishment of standards predicates—if the standards are to be effective—a considerable degree of recognition of what the standards are and who is making them, or the certifying agencies, the qualifications for certification and the list of certified.

The Inter-Relation of the Specialist and the General Practitioner

Here indeed is the absorbing question: If the field of medicine is indeed too broad for the individual practitioner, what is the answer? Is it to educate all physicians to do more highly specialized work? Or is it to have practically nothing but specialists and get more patients into their hands? A number

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of writers in "American Medicine" feel that this is a real dilemma and that it should be squarely faced.

It may be said that the more general view is that it is necessary at once to produce better qualified specialists and more of them, and better trained general practitioners—and more of them. The specialists are seen not as displacing the general practitioner but as changing the nature of his service and distinctly changing the nature of his training. As many of these men see it, the general practitioner of the future is a new emerging figure, who will lead the specialists in the intensive and extensive nature of his training and in the requirement for specific competence. The problem as to how such a broadly competent agent is to be developed and trained is perhaps a problem that the medical schools have not yet fully defined or faced.

Correspondence

Ten Golden Rules of the Cancer Examination.

Petersburg, Va.
June 14, 1937.

TO THE EDITOR:

Enclosed you will find the "Ten Golden Rules of the Cancer Examination" perpared by Dr. Frank E. Adair through the cooperation of Dr. James Ewing and Dr. Burton T. Simpson with certain editorial changes by the Executive Committee of the American Society for the Control of Cancer.

These rules and the foregoing explanation have been officially adopted by the Society and if it meets with your approval, I will appreciate your publishing them in the VIRGINIA MEDICAL MONTHLY.

WRIGHT CLARKSON.

THE TEN GOLDEN RULES OF THE CANCER EXAMINATION

The American Society for the Control of Cancer has a dual duty to perform. It must support the medical profession in its splendid work in the diagnosis and treatment of cancer. It must give the layman the facts which are needed to insure his intelligent and steady cooperation. These "rules" for the cancer examination are offered as a contribution to both the medical and lay groups to make their task easier and to show them both their common interest.

These are the steps the general physician will follow in a thorough examination for symptoms that may mean cancer. While this examination will not determine positively whether or not cancer exists, it will uncover many conditions that may later become cancerous and will indicate whether the patient should be referred to a surgeon, a radiologist, or a specialist for definite tests and for treatment by surgery, X-ray, or radium. The Golden Rules are offered as a guide and aid, not as a complete final or arbitrary judgment of what an examination should include:

1. Examine the lips, tongue, cheek, tonsils and pharynx for persistent ulcerations; the larynx for hoarseness, and the lungs for persistent cough.
2. Examine the skin of the face, body and extremities for scaly bleeding warts, black moles and unhealed scars.
3. Examine every woman's breasts for lumps or bleeding nipple.
4. Examine the subcutaneous tissues for lumps of the arms, legs and body.
5. Investigate any symptoms of persistent indigestion or difficulty in swallowing. Palpate the abdomen.
6. Examine the lymph node system for enlargement of the nodes of the neck, groin, or arm pit.
7. Examine the uterus for enlargement, lacerations, bleeding or new growths. Make a bimanual examination to determine the condition of ovaries.
8. Examine the rectum and determine the cause of any bleeding or pain.
9. Examine the urine microscopically for the presence of blood.
10. Examine the bones, and take a radiograph of any bone which is the seat of a boring pain, worse at night.

Public Health Statistics

I. C. RIGGIN, M. D.,
State Health Commissioner of Virginia.

The report of the State Health Department's bureau of communicable diseases, as compiled for the month of May, shows the following cases compared with the same month in 1936.

	1937	*1936*
Typhoid and Paratyphoid	27	26
Diphtheria	38	57
Scarlet Fever	63	246
Measles	2,534	650
Meningitis	38	49
Poliomyelitis	3	2
Rocky Mountain Spotted Fever	3	1
Typhus Fever	0	0
Undulant Fever	4	6
Tularaemia	0	1
Smallpox	0	1

SANITARY REGULATIONS ENFORCED

Based on evidence of local health authorities which was augmented by that of sanitation personnel of the State Department of Health, a verdict convicting a realty company of charges of creating and maintaining a public nuisance in Warwick County was rendered recently. A fine of $1,000 was imposed on the corporation, while the local resident manager was penalized $500.

The charges involved a negro settlement and grew out of alleged insanitary conditions in the area known as Swantown. The Commonwealth asserted that inadequate sewage disposal in that locality had resulted in the pollution of water courses around Swantown, of New Market creek, and of Lake Biggins in Huntington Park. In addition to the penalty, the judge ordered an immediate abatement of the nuisance. The village was erected approximately two years ago on the new Yorktown Road. The real estate company constructed about forty houses which were sold on a deferred payment plan.

At the time of construction, county sanitation officers, as well as representatives of the State Department of Health, indicated the necessity of better sewerage facilities. The advice, however, was not taken. Repeated attempts to have the conditions alleviated were unavailing. The trial and conviction followed.

DENTAL HYGIENE REQUESTS

The Department's mouth hygiene division reported that applications for dental hygiene work in schools have been received from twenty-seven counties. In addition, eight counties have requested this type of activity for the negro school children. The requests already received involve 108,455 white enrollees and 8,287 colored. During the next school year, eighteen clinicians will be engaged in this work. Recent reports indicate that at least eight more jurisdictions are seriously considering the need for this service.

As is known, the respective counties must match the appropriation of the State Department of Health. This money is in addition to the nominal fee charged for each correction if, and only if, the child is able to pay for this type of work.

Woman's Auxiliary to the Medical Society of Virginia

President—MRS. FRANKLIN D. WILSON, 5352 Studeley Avenue, Norfolk.

President-Elect—MRS. JAMES B. STONE, 15 Maxwell Road, Richmond.

Corresponding Secretary—MRS. C. C. SMITH, 1219 West Princess Anne Road, Norfolk.

Recording Secretary—MRS. F. O. PLUNKETT, 2 Riverview Place, Lynchburg.

Treasurer—MRS. REUBEN F. SIMMS, 2502 Hawthorne Avenue, Richmond.

Chairman, Press and Publicity—MRS. W. AMBROSE MCGEE, 4107 Kensington Avenue, Richmond.

Report of Delegate to the Annual Meeting of the Auxiliary to the American Medical Association.

The fifteenth annual meeting of the Woman's Auxiliary to the American Medical Association was held in Atlantic City, N. J., the week of June 6th to 11th. The meetings were all well attended, and, whereas an accurate registration figure could not be obtained before the departure of this delegate, over 750 members and friends had registered by the middle of the week.

Sunday, June 6th, and Monday, June 7th, were taken up for the most part with general convention committee meetings.

The Southern Breakfast, honoring Mrs. Robert E. Fitzgerald, National President, was held in the Submarine Grill of Hotel Traymore on June 8th. This immediately preceded the opening general session, which convened at 9:30 A. M. in the Rose Room of the Hotel, with Mrs. Fitzgerald presiding. Mrs. Carl A. Surran, the Convention Chairman, made the introductory address, and the invocation was given by Rev. Eugene A. Durrell. Following this the Key to the City was presented to Mrs. Fitzgerald by Mayor C. D. White of Atlantic City. Mrs. George A. Rogers of New Jersey gave the address of welcome and the response was made by Mrs. Hobart Rogers of California. Thus, singularly, two Mrs. Rogers, one from the Atlantic Coast, and one from the Pacific Coast, brought forcibly before the members the realization of the vast territory which this great National Auxiliary covers.

The "In Memoriam" services for the members who had passed away since the last Annual Meeting

was most beautiful and impressive in its solemnity. Following this, came the Roll Call of State Presidents and Standing Committees.

At this time Mrs. Fitzgerald read the report of her activities during her year of Presidency. Her efforts during the year must have been most intensive to have brought about the splendid results which she has obtained. Under her capable leadership the organization has increased greatly in size, and there are now 18,295 members of the National Auxiliary. Mrs. Fitzgerald visited eleven States during her term of office, and, when distances are considered, it will be recognized that visiting eleven State Auxiliaries in twelve months is, in itself, quite an achievement. At the close of her report, Mrs. Fitzgerald submitted the recommendation that the Executive Board devise some plan whereby funds could be provided for retaining a Private Secretary for future Presidents. This recommendation was accepted, and, later on in the meeting, a motion was carried to provide funds for such a Secretary.

The Standing Committees then gave their reports covering the year's work, and the Nominating Committee brought in a slate of new officers for the coming year. Following this the President-Elect, Mrs. Augustus S. Kech of Altoona, Pa., was presented to the group assembled, and brought a message regarding her hopes and aims for the Auxiliary for the coming year. At the conclusion of her talk the meeting adjourned for the day.

On Wednesday morning, June 9th, at 9:00 o'clock, the business meeting was resumed with Mrs. Fitzgerald presiding. At this time reports concerning the work of all State Presidents were heard. There are thirty-eight States organized, and it would be impossible for this delegate to recount the year's activities of each State separately in this report. Therefore, a list of some of the projects entered upon by various Auxiliaries throughout the Country is listed:

Sponsoring Health Education Programs
Sponsoring Essay Contests
Sponsoring Radio Programs
Drive for Increased Membership
Hygeia Subscriptions
Student Loan Funds
Cod-Liver Oil and Milk donated
Loan Closets and Layettes Provided
Beds supported at various Hospitals, Sanatoriums, and Institutions
Assisting Women's Field Army for Control of Cancer.

Following the State Reports, the newly elected officers were inducted into office for the coming year, as follows: President, Mrs. Augustus S. Kech, Altoona, Pa.; President-Elect, Mrs. C. C. Tomlinson, Omaha, Neb.; Vice-Presidents, Mrs. Prentiss Wilson, Washington, D. C., Mrs. Lucius Cole, River Forest, Ill., Mrs. R. M. Schulte, Spokane, Wash., and Mrs. Wm. E. Hibbetts, Texarkana, Ark.; Recording Secretary, Mrs. T. R. W. Wilson, Greenville, S. C.; Treasurer, Mrs. E. L. Whitney, Detroit, Mich.

This brought to a close the business meetings of the Convention.

The entertainments provided for the visiting ladies by the local Committee were most enjoyable. On June 7th at 8:30 P. M., a "Get Acquainted Beach Party" was held at the Steel Pier. A heavy downpour of rain which heralded in this outdoor party could not dampen the ardor of those who witnessed the water sports, dancing, games and motion pictures on this occasion. On June 8th, a delicious luncheon was held at Hackney's Famous Sea Food Restaurant, after which there was a Rolling Chair Ride along Atlantic City's "Wooden Way." June 9th was the day of the Annual Auxiliary Luncheon at the Hotel Traymore. This is always a gala event, and the Auxiliary was honored to have as its guest speakers Dr. Chas. Gordon Heyd, outgoing President of the A. M. A., and Dr. J. H. J. Upham, the incoming President. Following the luncheon tea was served in the Mandarin Room of the Hotel, and that evening the visitors were entertained at an informal party at 8:30 at this Hotel. On June 10th there was another luncheon, followed by a Beach Party and Fashion Show. At 7:00 P. M. that night the visiting ladies attended a "Bring Your Husband Dinner," and wound up at the President's Reception and Ball at the Hotel Ambassador, where dancing was enjoyed until the "wee small hours."

The Atlantic City Meeting was a success in every respect, and the visitors departed with the hope that many of them might renew the acquaintance of new made friends, and of those of long standing in San Francisco, the Convention City of 1938.

JANET W. STONE,
(MRS. JAMES B. STONE)
Delegate.

Truth About Medicine

In addition to the articles previously enumerated, the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:

Bilhuber-Knoll Corporation.
Metrazol Ampules, 3 cc.

Merck & Co., Inc.
Vinethene-Merck.
Sulfanilamide-Merck.
Tablets Sulfanilamide, 5 grains.

E. R. Squibb & Sons.
Sulfanilamide-Squibb.
Tablets Sulfanilamide-Squibb, 5 grains.

Propaganda for Reform

Strained Fruits and Vegetables in the Feeding of Infants.—The Council on Foods has considered the evidence that is now available concerning the nutritional significance of sieved fruits and vegetables in the feeding of infants. The Council concluded that strained fruits and vegetables, because of their physical structure, are useful foods for infant feeding and for certain types of therapeutic diets. These strained foods are probably significant as sources of vitamin B_1, iron and possibly other factors. They also contain vitamins A and C in amounts that under some conditions might be important. The feeding of strained fruits and vegetables, properly selected to meet the needs of the individual infant at an age of about four to six months, is generally favored by pediatricians. The Council, of course, believes it to be a question for the physician to decide at what age a baby shall be fed strained foods and at what age it is considered desirable to replace such products with coarser foods. (*J. A. M. A.*, April 10, 1937, p. 1259.)

"Sulfanilamide" (The Council Name for Para-Aminobenzene-Sulfonamide).—A number of pharmaceutical firms have submitted to the Council on Pharmacy and Chemistry preparations of para-aminobenzenesulfonamide, which is not protected by patents. Among the proprietary names under which the product is marketed are Prontylin, Stramid, Streptocide, Colsulanyde and Prontosil Album. The Council has not completed its consideration of the drug and therefore has not issued any statement concerning its acceptability or non-acceptability for inclusion in New and Nonofficial Remedies. However, considerable consideration has been given to the selection of a nonproprietary name for the preparation. One firm suggested the name "Sulfanilamide," pointing out that this denoted the composition and that the name was being used abroad. Other interested films agreed to the term. The Council has therefore formally adopted the nonproprietary name "Sulfanilamide" for para-aminobenzenesulfonamide. (*J. A. M. A.*, April 17, 1937, p. 1340.)

A Complication Following Treatment with Sulfanilamide.—While sulfanilamide at first was believed to be nontoxic, several reports now indicate that sulfhemoglobinemia may be an occasional complication of its use in treatment. Discombe at St. Bartholemew's Hospital, London, calls attention to this in six of seven patients in the hospital who had received more than 5 Gm. of the prontylin brand of sulfanilamide. Three of these patients showed marked cyanosis. An interesting fact is that four of the seven patients had been given frequent doses of magnesium sulfate. The one patient who did not show any abnormal pigments in the blood even after long continued sulfanilamide treatment had not received any sulfates by mouth or as a dressing. Discombe's report suggests that a careful watch for the development of cyanosis is not sufficient precaution against sulfhemoglobinemia; in addition the total hemoglobin should be determined and the patient's blood examined at regular intervals of every few days. The possibility of an unrecognized occurrence of sulfhemoglobinemia should be borne in mind and the administration of magnesium or sodium sulfate to patients under treatment with sulfanilamide probably should be forbidden until more information is available. (*J. A. M. A.*, April 17, 1937, p. 1345.)

New and Nonofficial Remedies

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Calcium Therapy in Dentistry.—Efforts to promote the use of compounds of calicum and phosphorus in medicine and in dentistry have been increasing. Because of the extensive promotion of these products to the dental profession, the Council on Dental Therapeutics has reviewed the functions uses and actions of calcium in human physiology and nutrition. The dental council pointed out that there is no direct positive evidence from either the laboratory or the clinic that the addition of calcium and phosphorus compounds to an otherwise ample diet influences in any definite manner the incidence of dental decay in the child or in the adult, or that it promotes the development of noncarious teeth *in utero*, in infancy and during growth or in the adult; nor is there any sound evidence that a calcium drain during pregnancy and lactation is lessened by the addition of these compounds when the diet is well balanced. While there is some dispute as to the exact importance of vitamin D or factors simulating it, the Council on Dental Therapeutics has resolved the problem for dentists by pointing out that cod-liver oil has a favorable influence on the absorption and subsequent deposition of calcium and phosphorus in the bones and in the teeth. (J. A. M. A., May 8, 1937, p. 1655.)

Tetanus Toxoid, Alum Precipitated (Lilly).—A tetanus toxoid, alum precipitated (The Journal A. M. A., May 16, 1936, p. 1735) marketed in packages of two 0.5 cc. vials (one immunization treatment); and in packages of one 5 cc. vial (five immunization treatments). Eli Lilly & Co., Indianapolis, Ind.

Book Announcements

Bacteriology of Specific Communicable Diseases. Handbook of Public Health Bacteriology. General information regarding epidemiology, collection and shipment of specimens, and bacteriologic, serologic and chemical procedures. 1937. Edited by M. S. Marshall. Department of Public Health. City and County of San Francisco, California. J. C. Geiger, Director. 141 pages. Paper.

The purpose of the book may be cited from a portion of the Introduction:

"The preparation of this manual has been based on a need for condensed general information, otherwise available only by consulting an extended list of references, often widely separated, which pertain to medicine, to field work, to epidemiology in general, and to laboratory technic."

Recent Acquisitions—Library, Medical College of Virginia.

The following books are available to our readers, the only cost being return postage:

Adams, R.—Interracial Marriage in Hawaii.
Allen, C.—Modern Discoveries in Medical Psychology.
American Medicine.—2 vols.
Augustine, G. M.—Some Aspects of Management of College Residence Halls for Women.
Baldwin, E.—Introduction to Comparative Biochemistry.
Bard, S.—Two Discoveries Dealing with Medical Education in Early New York.
Behanan, K. T.—Yoga: a scientific evaluation.
Belling, J.—The Use of a Microscope.
Bentley, F. J.—Artificial Pneumothorax: Experience of the London County Council. (Med. Res. Council Spec. Rep. Ser. No. 215.)
Best and Taylor—Physiological Basis of Medical Practice.
Boyd, W.—An Introduction to Medical Science.
British Association for the Advancement of Science—The March of Science.
Brown, W.—Mind, Medicine and Metaphysics.
Bull, H. B.—Biochemistry of the Lipids.
Burnet, F. M.—The Use of the Developing Egg in Virus Research. (Med. Res. Council Spec. Rep. Ser. No. 220.)
Campbell, A. M.—The Black Death and Men of Learning.
Cannon & Rosenblueth—Autonomic Neuro-Effector Systems.
Castle, W. B.—Pathological Physiology and Clinical Description of the Anemias.
Clendening, L.—Medicine and Mankind.
Columbia University—Contemporary Developments in Chemistry.
Compton & Allison—X-rays in Theory and Experiment.
Cooper, C. R.—Here's to Crime.
Craig, E.—Woman, Wine and a Saucepan.
Cramp, A. J.—Nostrums and Quackery and Pseudo-Medicine. Vol. 3.
Dalldorf & Eddy—Avitaminosis.
Darrow, K. K.—The Renaissance of Physics.
Davenport & Ekas—Statistical Methods in Biology, Medicine and Psychology.
Dietz, D.—The Story of Science.
Dixon, W. E.—Manual of Pharmacology. 8th ed.
Donnelly, G. M.—Alcohol and Habit Forming Drugs.
Erlanger & Gasser—Electrical Signs of Nervous Activity.
Essed, W. F. R.—Over den Oorsprong der Syphilis.
Evans, D. H.—Florence Nightingale.
Faris, E.—The Nature of Human Nature.
Fearon, W. R.—Nutritional Factors in Disease.
Freud, S.—The Problem of Anxiety.
Gallaudet, B. B.—A Description of the Planes of Fascia of the Human Body.
Geschicter & Copeland—Tumors of the Bone.
Gonzales, T. A.—Legal Medicine and Toxicology.
Governor's Comm. on the Care of the Insane and Mental Defectives. A Study of Mental Health in North Carolina.
Gregory, J.—A B C of the Endocrines.
Guedel, A. E.—Inhalation Anesthesia.
Gumpert, M.—Trail-blazers of Science.
Guttmacher, A. F.—The Story of Human Birth.
Hackett, L. W.—Malaria in Europe.
Hadfield & Garrod—Recent Advances in Pathology.
Hamilton, G.—Social Case Recording.
Hutchins, M., *et als.*—Guide to the Use of Libraries.
Jacob, H. E.—The Saga of Coffee.
Kamm, O.—Qualitative Organic Analysis.
King, B.—Changing Man: the Education System of the U. S. S. R.
Lea, F. C.—Elementary Hydraulics for Technical Students.
Lillingston, C.—His Patients Died.
Loewenberg, S. A.—Clinical Endocrinology.
Majocchi, A.—Life and Death.
Manhattan Eye, Ear, Nose and Throat Hospital—Nursing in Diseases of the Eye, Ear, Nose and Throat.
Manson-Bahr, P. H.—Tropical Diseases.
Mathews, A. P.—Vitamins, Minerals and Hormones.
Mees, C. E. K.—Photography.
Menefee, J. T.—Virginia Housekeeper's Guide.
Meyer, A. W.—An Analysis of the De Generatione Animalium.
Miller, W. S.—The Lung.
Mitchell, S. A.—Eclipses of the Sun.
Mitchell, S. A.—Parallaxes of 260 Stars, Derived from Photographs Made at the Leander McCormick Observatory.
Morgan, T. H.—Experimental Embryology.
Morton, R. S.—A Woman Surgeon.
Murray, P. D. F.—Bones.
Mustard, H. S.—Rural Health Practice.
Newsholme, A.—The Last Thirty Years in Public Health.
Nursing as a Profession.

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Editorial

The House.

When New York's Van Etten, supported by Tennessee's Shoulders and flanked by the redoubtable Olin West and a battery of busy stenographers, brought down a resounding gavel upon the Speaker's table in the Renaissance Room of the Ambassador Hotel in Atlantic City, he faced one hundred and seventy-odd politico-medical veterans, tried and true. The time was June 7, 1937. The occasion was the opening of the democratic House of Delegates of the eighty-eighth meeting of the American Medical Association.

The Speaker lost no time delivering his appointed address in which he emphasized the importance of the continuity of legislative action and paid glowing tribute to the fifteen delegates, bald-headed, gray-haired, cigar-toting, whose length of service inspired him to encomiastic appraisal. The House was then addressed by its business-like President on the economic side of medicine. He in turn was followed by the President-elect who had offerings of a similar character to present.

The delegates then settled down to the tedious business of hearing reports of officers, committees, councils and bureaus, promptly referred all matters to appropriate reference committees, and later accepted most of what these committees recommended. The House finally got around to the two or three really important issues that faced it, voted itself in and out of executive session in bewildering succession, and disposed of all business before the convention closed. If delegates heard or saw any of the scientific program they must have been endowed with the ability of being in two places at once.

The House of Delegates of the American Medical Association is a smoothly operating machine which moves forward steadily in its business. There is very little creaking of machinery, very little parliamentary wrangling. The impression is almost inescapable that an unseen force directs the whole, that powerful committees determine policy, that length of service governs position on committees, that conservatism is the word and that innovations are difficult to introduce. A doctor from Mars, visiting the convention for the first time could easily have been persuaded that, not the 170-odd delegates of the House of Representatives, but a small unseen coterie controlled this machinery and spoke when speaking had to be done for the 105,000 doctors who compose the membership of the American Medical Association.

The New York Resolution.

The Medical Society of the State of New York, made up of more than 14,000 physicians, through its Speaker, Samuel J. Kopetsky, presented to the House of Delegates of the American Medical Association a resolution which was easily the most important piece of business that distinguished body had to consider. Its thesis was the recognition of

the fact that government is directly concerned with the health of all its citizens and that a national public health policy should be formulated immediately by the American Medical Association. Specifically the resolution proposed: (1) extension of public health services, federal, state and local; (2) provision for "adequate medical care for the medical indigent, the cost to be met from public funds"; (3) public funds for the support of medical education and medical investigation and research; (4) public funds for hospitals engaged in the care of the indigent sick; (5) "functional consolidation of all federal health and medical activities under a separate department." It would be interesting to speculate on what disposition would have been made of this resolution had not the Federal Government itself, represented by Senator J. Hamilton Lewis of Illinois, injected into the debate a point of view even more drastic than that presented by the delegation from New York.

Senator Lewis's Warning.

When Senator J. Hamilton Lewis of Illinois appeared before the House of Delegates of the American Medical Association on Thursday, June 10th, he represented the President of the United States and the Senate Sub-committee on Social Legislation of which he is chairman. He let it be known that, willy, nilly, an amendment to the Social Security Act is going to pass the present Congress with adequate provision for the medical care of those who cannot afford to pay for it. He said that the President desired the medical profession's advice in formulating a federal medical program. He then made some rather startling statements: "The question for you doctors is not whether you like it or whether you don't. The question for you is what is to be done about it?" A little later he said: "I am compelled to tell you that Government is on its way of saying to you 'Hold up here, Mr. Doctor. We are not asking you to do anything about a *patient*. . . . It is your creation. We recognize an instrument called *citizen* who is essential to the welfare of the Government'." And to those who would say "This is an invasion, it ought not to be adopted," Mr. Lewis replied, "It is the policy that seems to possess all mankind in his advances all over the world." The speaker believed the issue no longer escapable and in friendly spirit he professed to have come for consultation with the medical profession. Senator Lewis warned that there were even more drastic points of view in Washington, stating that there are those "who are shortly going to demand of you that there be a system of examinations and applications by the Federal Government upon every doctor in America to prove his right to be admitted under the federal law in addition to that which he is now enjoying under his local laws." Senator Lewis's message was as a matter of course referred to the Board of Trustees where already the New York resolution had been hotly debated.

Passive Receptivity.

The New York Times in a recent significant editorial remarked that the eighty-eighth Session of the American Medical Association would be notable not for its one hundred and one addresses by distinguished physicians, nor for its astonishing scientific exhibits, but for its action concerning the socio-economic responsibilities which were facing organized medicine in the modern world. The writer of the editorial expressed the hope that the Bourbonism of the powers-that-be in organized medicine would not force history to repeat itself, and called to mind Bismarck's sweeping interventions of 1884 and Lloyd George's equally revolutionary health policy of 1912.

With the eyes of more than 100,000 doctors, as well as the eyes of millions of lay readers of the popular press upon it, the Reference Committee made its report and the House of Delegates acted. It adopted only a part of the New York Society's resolution, and toward the Federal Government's overture its expressed attitude was one of "passive receptivity." In official language it was stated that "The American Medical Association reaffirms its willingness on receipt of direct request to cooperate with any governmental or other qualified agency, and to make available the information, observations and results of investigation, together with any facilities of the Association." This vague generalization must have been cruelly disappointing to that group of the profession which has long urged upon organized medicine the importance of aggressiveness in the initiation of plans calculated to bring medicine closer to the social and economic needs of modern America. It has been their opinion that if organized medicine has anything to fight for, anything to defend, the best defense is vigorous offense.

Birth Control.

The position of the American Medical Association on the controversial question of birth control was clarified at the Atlantic City meeting when the report of the committee which had been considering this subject for two years was adopted. The report recommended simply that the Association advise physicians of their legal rights in relation to the use of contraceptives, recommended further investigation of materials, devices and methods, urged sounder contraceptive teaching in medical schools, and advised that all clinics concerned with the prevention of conception be under legal licensure and medical control. This action on the part of the Association occasioned very much more excitement among the laymen interested in contraceptive propaganda than among the physicians who briefly disposed of the resolution.

A National Department of Health.

In reviewing the attitudes and actions of the American Medical Association at its recent meeting it is well to remember that one recommendation of tremendous importance was adopted, namely: "that such health activities as now exist [in the United States] be so consolidated in a single department which would not however be subservient to any charitable, conservatory or other governmental interest," and that "such medical or health department should be in the hands of a competently trained physician experienced in executive administration." The American Medical Association is clearly in favor of establishing a National Department of Health.

À la Canada.

In his address to the House of Delegates, President Charles Gordon Heyd of New York made pointed reference to a recent decision of the doctors of British Columbia concerning compulsory health insurance which exhibited the logic of the old adage, In Union There Is Strength. The medical profession of British Columbia was faced with an unreasonable and unsound compulsory sickness insurance law. So unfair were its provisions that the committee of the College of Physicians and Surgeons of British Columbia to which the matter had been referred, decided to have all the doctors of British Columbia vote upon it. When the ballots were counted there were 612 against it and 13 for it. Under these circumstances, realizing the impossibility of putting the measure into effect, the provincial government promptly dropped the matter.

Rabbit Serum.

The expense of horse serum in the treatment of pneumoccccic pneumonia, the existence of a number of horse-sensitive individuals who now and then develop pneumonia, the possibility of developing a specific therapeutic serum of higher titre than now obtains, as well as other factors, have prompted recent investigation into the possibility of substituting rabbit for horse serum in the treatment of pneumococcic pneumonia. A number of investigators are now at work on the new therapeutic agent and we are led to believe that very shortly reports of these studies will appear in medical literature.

Death Rides With Venus.

The author of this sensational presentation of the venereal problem hails from Chicago which we are told, "probably constitutes the best informed portion of the country's population about syphilis and gonorrhoea." It is a little book of 158 pages divided into twenty-one chapters set off by such headings as "Legion of the Damned," "Squirming Corkscrews," "Clinic or Butcher Shop," "Mustn't Say Nasty Words."

We are told that the proof was submitted to a number of lay and professional persons with the hope that one of them would write an appropriate introduction. Chapter XI is a blasting condemnation of the medical profession. "I know the average doctor for what he really is," writes the author, "an uninformed, haphazard healer who hides his indecision behind a disguise of long words and ponderous phrases." "Blame for the prevalence of syphilis and gonorrhoea in the United States today can be fixed in only one place, upon the medical profession," he continues and adds, "Most doctors know less about syphilis and gonorrhoea than they do about Einstein's theory. They have no more idea how to treat them than does the patient." Turning to the medical colleges the author's vehemence is only a little less evident. He claims to have made a survey of fifty-four medical schools, finding only twelve which could be said "by any stretch of the imagination to give really thorough training in this line." Paying his compliments to his fellow practitioners again he states that "only 20 per cent of the persons infected are able to pay the rates now asked

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for venereal disease treatments by private physicians." Declaring that physicians frankly capitalize the treatment of venereal patients, he asserts that "again the finger of guilt points at doctors."

Although at times one questions the author's taste, it must be admitted that on the whole the account is a vivid portrayal of the prevalence, havoc, and utter inadequacy of the present management of gonorrhoea and syphilis in this country. Had the author omitted Chapter XI he would probably have found someone from the medical profession willing to write an introduction to his book.

Department of Clinical and Medical Education of the Medical Society of Virginia

Approval of Medical Societies.

Since many societies do not meet frequently it is suggested that those wishing to avail themselves of either the postgraduate course in Pediatrics or that in Obstetrics and Gynecology, whether now or later, take formal action at their next meeting. Before either course can be given anywhere it is necessary to secure some sort of local approval. In cases where the local medical society has taken no action it becomes necessary to undertake a canvass of the individual members and this involves the Department in heavy expense, because it is not possible to conduct such a canvass through the mail.

Pediatrics.

During the five weeks ending May 24, Dr. Arena offered his course in Albemarle, Augusta, and Rockingham Counties. Meetings for these counties were held, respectively, in Charlottesville, Staunton, and Harrisonburg, and were attended by forty-four doctors. The constant cooperation of the officers of the local societies contributed much to the success of the course in this area.

At present the course is being offered in Southampton, Greenesville, Brunswick and Mecklenburg Counties, the centers being Courtland, Emporia, Lawrenceville and Boydton.

From June 28 to July 31, Dr. Arena will be in the northern part of the State, conducting the course concurrently at Woodstock, Winchester and Front Royal.

Obstetrics and Gynecology.

From April 19 to May 22, Dr. Shamburger held weekly meetings in Williamsburg, Newport News and in Norfolk. In the latter place separate meetings were held for the white doctors and for the colored doctors in Norfolk and Portsmouth. Eight doctors attended at Williamsburg, five at Newport News, while in Norfolk sixteen white and twelve colored physicians took the course.

Until the latter part of June, Dr. Shamburger will offer his course in Alleghany, Bath and Rockbridge Counties. The centers for these counties are Covington, Clifton Forge and Lexington.

Proceedings of Societies

The Culpeper Medical Society

Held a meeting May 24th, at 4 P. M. called by Dr. D. W. Kelly, president, for election of new officers and to arrange the details for a toxoid clinic sponsored by the Parent-Teacher's Association.

The officers elected were Dr. J. L. Stringfellow, president, Dr. Granville Eastham, vice-president, and Dr. O. K. Burnette was continued as secretary-treasurer. Dr. J. Bernard Jones was elected a member of the society. Delegate and alternate to the meeting of the State Society to be held in Roanoke in October were also named.

It was decided to hold a toxoid clinic for protection against diphtheria on Tuesday, June 1st, between 1:00 and 3:00 P. M. in any of the Culpeper County physician's offices. This clinic is especially for pre-school children who expect to enter the Cul-

peper school. The charges for children attending this clinic will be fifty cents each for the toxoid, provided the child is brought to the office of his family physician with a certificate from a member of the Parent-Teacher's Association requesting the toxoid, because the child is unable to pay the regular rates of $1.50. In cases where the child is not able to pay anything the toxoid will be paid for by the Parent-Teacher's Association, if the child presents a certificate from the P. T. A. to that effect.

It was also brought out at this meeting that due to the recent floods and wet weather, typhoid is likely to be present during the summer and the opinion was unanimous among members of the Society that persons not having had typhoid, or typhoid vaccine within the last three years, should have these inoculations this spring to protect from this dreaded disease.

O. K. BURNETTE, *Secretary.*

The Norfolk County Medical Society,

At its recent meeting, elected the following officers: President, Dr. Frank H. Redwood; president-elect, Dr. Wm. B. Newcomb; vice-president, Dr. N. F. Rodman; and secretary-treasurer, Dr. Lockburn B. Scott. Dr. Scott is entering upon his nineteenth year of service. All officers are of Norfolk. Delegates and alternates to the State Society meeting were also elected at this time.

Alleghany-Bath County Medical Society.

At a recent meeting of this Society, the following officers were named for this year: President, Dr. Thomas M. Winn, Covington; vice-president, Dr. R. L. Claterbaugh, Clifton Forge; and secretary-treasurer, Dr. R. P. Hawkins, Clifton Forge (re-elected). Delegates and alternates to the State Society meeting were also elected.

The Louisa County Medical Society

Met in Louisa on June 7th, with Dr. H. S. Daniel, president, presiding. Dr. H. G. Byrd, secretary-treasurer, and Drs. T. E. Stanley and W. S. Lloyd were the other members present. Plans were made for the next tuberculosis clinic to be held in Mineral on July 23rd, and delegate and alternate to the State Society meeting were elected at this time.

It was decided to hold future meetings of the Society on the first Friday of each month.

The Lynchburg Academy of Medicine

Held its regular meeting on June 14th, with the president, Dr. John Wyatt Davis, Sr., presiding.

Dr. Walter Forrest Thornton was elected to active membership.

The scientific program consisted of a motion picture on "Sub-Total Thyroidectomy," and Drs. Elisha Barksdale and John Hundley, Jr., presented interesting and unusual cases of toxic thyroid diseases.

The next meeting of the Academy will be held in September.

The Northern Neck Medical Association

Met in regular semi-annual session at Heathsville, Va., on May 27th, at which time interesting papers were presented by Drs. T. B. Washington, T. L. Driscoll, Joseph Bear and T. Neill Barnett of Richmond, Dr. Lee S. Liggan of Irvington, and by Dr. J. M. Holloway of Fredericksburg. The following visiting physicians were present: From Richmond, Drs. Peple, Lee, Driscoll, Washington, Bear, Barnett, Murrell, Gill, Williams, Dodson, Robins, Guy Horsley and Barnes; from Fredericksburg, Drs. Cole, Harrison, Holloway and Payne; from Indian Head, Md., Dr. J. A. Fields, U. S. N. The local physicians attending were: Dr. E. R. Moorman of Kilmarnock, president, Dr. E. T. Ames of Montross, secretary, and Drs. Lee S. Liggan, M. C. Oldham, C. T. Pierce, W. B. Richardson, A. H. Deekens, and L. E. Cockrell.

The next meeting of the society will be held on the fourth Thursday in October at Kilmarnock, Va.

The Virginia, Maryland and District of Columbia Medical Society

Held its Spring meeting in Leesburg, Va., on May 19th, with the president, Dr. Benjamin Perry of Bethesda, Md., presiding. An attendance of nearly 100 was recorded. Papers were read by Drs. Robert E. Moran, Fritz Reuter, James A. Gannon, V. L. Elliott, and Charles Stanley White and J. Lloyd Collins.

Dr. James A. Gannon, Washington, D. C., was elected president and Dr. John A. Gibson, Leesburg, Va., vice-president. Dr. Harry F. Davies, recording secretary, Dr. A. Magruder MacDonald, corresponding secretary, and Dr. Robert S. Lamb, treasurer, all of Washington, were re-elected.

The Leesburg Parent-Teacher Association served luncheon for the Society.

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News Notes

Commencement Exercises.

MEDICAL COLLEGE OF VIRGINIA

The ninety-ninth annual commencement exercises of the Medical College of Virginia were held from May 29th through June 1st. The "student night" dance on the 29th was the opening affair. On Sunday, the commencement sermon was delivered by Rev. Ernest Van R. Stires, D. D., rector of All Saints' Church. Alumni day was Monday and at the annual banquet, Dr. Roshier W. Miller, Richmond, was elected president of the alumni association. Other officers are: vice-presidents, Dr. F. P. Fletcher, Jr., Richmond; Dr. W. N. Hodgkin, Warrenton; Dr. H. M. Pettus, South Hill; and Miss Marguerite Nicholson, Richmond; and treasurer, Dr. T. Dewey Davis, Richmond.

On Tuesday, the annual luncheon for the faculty, alumni, senior students and guests was held at Cabiness Hall.

The commencement exercises were held at The Mosque on Tuesday, at 8:00 P. M., when 152 were awarded diplomas in medicine, dentistry, pharmacy, and nursing. Of this number 82 were in medicine, 22 in dentistry, 20 in pharmacy, and 28 in nursing. The honorary degree of doctor of science was conferred upon Dr. Irl Cephas Riggin, State Health Commissioner, Richmond. Howard W. Blakeslee, Science Editor with The Associated Press, delivered the commencement address. Following these exercises, the annual reception and dance was held at the John Marshall Hotel.

Following are the graduates in medicine, with hospital appointments:

HOSPITAL DIVISION, MEDICAL COLLEGE OF VIRGINIA, RICHMOND—Drs. John M. Anderson, Hampton; Lee Scott Barksdale, Petersburg; Daniel Coleman Booker, Richmond; W. Fitzgerald Cavedo, Richmond; Homer Jackson Hancock, Sedley; John Paul Jones, Richmond; Mary Louise Leland, Minneapolis, Minn.; and Jennings Bryan Ruffin, Powellsville, N. C.

JOHNSTON-WILLIS HOSPITAL, RICHMOND—Drs. William Stone Burton, Beaverdam; Otho Perry Campbell, Sparta; and Gabel G. Himmelwright, Jr., Newport News.

STUART CIRCLE HOSPITAL, RICHMOND—Dr. John Phillip Eastham, Culpeper; Robert Burns McEwen, Richmond; and Richard Anderson Michaux, Michaux.

SAINT ELIZABETH'S HOSPITAL, RICHMOND—Dr. William Benjamin Hoover, Richmond.

GRACE HOSPITAL, RICHMOND—Dr. Milton Cardwell Richards, Richmond.

SAINT LUKE'S HOSPITAL, RICHMOND—Drs. John Alexander Wright, Jr., Doswell; and Russell Greenway McAllister, Richmond.

TUCKER SANATORIUM, RICHMOND—Dr. John Thomas Llewellyn, Newport News.

LEWIS-GALE HOSPITAL, ROANOKE—Drs. Walter Glenn Hardy, Bedford; and John Hoge Woolwine, Jr., Blacksburg.

ROANOKE GENERAL HOSPITAL, ROANOKE—Dr. David Bott Manley, Orlando, Fla.

RAIFORD HOSPITAL, FRANKLIN—Dr. Morgan B. Raiford, Franklin.

UNITED STATES MARINE HOSPITAL, NORFOLK—Dr. Julius Snyder, Norfolk.

GALLINGER MUNICIPAL HOSPITAL, WASHINGTON, D. C.—Dr. Lendall Croxton Gay, Washington, D. C.

SIBLEY MEMORIAL HOSPITAL, WASHINGTON, D. C.—Drs. Claude Lacy Houck, Lewisburg, W. Va.; and Roger Stanley Williams, Uniontown, Pa.

CENTRAL DISPENSARY AND EMERGENCY HOSPITAL, WASHINGTON, D. C.—Drs. Otis Whittier Snyder, Mathias, W. Va.

CHESAPEAKE AND OHIO HOSPITAL, HUNTINGTON, W. VA.—Drs. Kenneth Nathan Byrne, Lexington; and William Steenbergen Morgan, Jr., Huntington, W. Va.

CHARLESTON GENERAL HOSPITAL, CHARLESTON, W. VA.—Drs. Robert Littlepage Calvert, Chelyan, W. Va.; Richard Bent Engle, Amma, W. Va.; Uel Clinton Lovejoy, Chelyan, W. Va.; Richard Nolan O'Dell, South Charleston, W. Va.; and Earl Masters Peck, Lewisburg, W. Va.

SAINT MARY'S HOSPITAL, HUNTINGTON, W. VA.—Dr. William Elmore Irons, Sinks Grove, W. Va.

OHIO VALLEY GENERAL HOSPITAL, WHEELING, W. VA.—Dr. Elliott Lorenzo Thrasher, Bridgeport, W. Va.

JAMES WALKER MEMORIAL HOSPITAL, WILMINGTON, N. C.—Dr. Marvin Smith Cashion, Mooresville, N. C.

CITY MEMORIAL HOSPITAL, WINSTON-SALEM, N. C.—Dr. Verne Clifton Lanier, Lexington, N. C.

REX HOSPITAL, RALEIGH, N. C.—Dr. Ballard Norwood, Jr., Virgilina.

JEWISH MEMORIAL HOSPITAL, NEW YORK, N. Y.—Dr. Louis Lipman, Poughkeepsie, N. Y.

QUEEN'S GENERAL HOSPITAL, NEW YORK, N. Y.—Dr. Theodore Johnson Moss, Richmond Hill, N. Y.

NASSAU HOSPITAL, MINEOLA, L. I., N. Y.—Dr. E. Bryan Quarles, Richmond.

MORRISANIA CITY HOSPITAL, NEW YORK, N. Y.—Dr. Herbert Norman Schwartz, New York, N. Y.

NEW YORK POLYCLINIC MEDICAL SCHOOL AND HOSPITAL, NEW YORK, N. Y.—Dr. George Andrew Shetter, Richmond.

METROPOLITAN HOSPITAL, WELFARE ISLAND, N. Y.—Dr. Eli Alvin Rosen, Dalton, Ga.

CALEDONIA HOSPITAL, BROOKLYN, N. Y.—Dr. Morris Wilburne, Brooklyn, N. Y.

WILKES-BARRE GENERAL HOSPITAL, WILKES-BARRE, PA.—Dr. Clarence Milton Hawke, Ashley, Pa.

SOUTH SIDE HOSPITAL, PITTSBURGH, PA.—Dr. Elmer McGraw, Follansbee, W. Va.

SAINT JOSEPH'S HOSPITAL, LANCASTER, PA.—Drs. William Alton and Margaret Allen Pennington, Richmond.

SAINT FRANCIS HOSPITAL, PITTSBURGH, PA.—Dr. Jack Donavon Sedwick, Kittanning, Pa.

FITZGERALD MERCY MEMORIAL HOSPITAL, UPPER DARBY, PA.—Dr. Reginald N. Stroup, Harrisburg, Pa.

CONEMAUGH VALLEY MEMORIAL HOSPITAL, JOHNSTOWN, PA.—Dr. Morris Manuta, Brooklyn, N. Y.

SAINT JOSEPH HOSPITAL, KANSAS CITY, MO.—Dr. William Bayne Allen, Kansas City, Mo.

MERCY HOSPITAL, CEDAR RAPIDS, IOWA—Dr. Johanna Christine Thelen, Madison, Wis.

UNITED STATES MARINE HOSPITAL, BALTIMORE, MD.—Dr. John Broaddus Holt, Pratt, W. Va.

HOSPITAL FOR WOMEN, BALTIMORE, MD.—Dr. Julien Herman Meyer, Enfield, N. C.

UNIVERSITY HOSPITAL, BALTIMORE, MD.—Dr. Hawley Howard Seiler, Richmond.

BARONESS ERLANGER HOSPITAL, CHATTANOOGA, TENN.—Dr. Arthur Calvin Broughton, Jr., Raleigh, N. C.

STATE OF WISCONSIN GENERAL HOSPITAL, MADISON, WIS.—Drs. James Otey Burke, Richmond; and Guy Wilson Daugherty, Fayetteville, W. Va.

GRADY HOSPITAL, ATLANTA, GA.—Dr. David Turner Carr, Richmond.

NATHAN AND MIRIAM BARNERT MEMORIAL HOSPITAL, PATERSON, N. J.—Dr. Irving Robert Hayman, Paterson, N. J.

JERSEY CITY MEDICAL CENTER, JERSEY CITY, N. J.—Dr. Harold Irving Markowitz, Jersey City, N. J.

HACKENSACK HOSPITAL, HACKENSACK, N. J.—Dr. Harold Jerome Megibow, Grantwood, N. J.

PASSAIC GENERAL HOSPITAL, PASSAIC, N. J.—Dr. Alfred William Norris, Richmond.

BUTTERWORTH HOSPITAL, GRAND RAPIDS, MICH.—Dr. John Sibley Burleson, Grand Rapids, Mich.

BLODGETT MEMORIAL HOSPITAL, GRAND RAPIDS, MICH.—Dr. Willard McKenzie Burleson, Grand Rapids, Mich.

SCOTT AND WHITE HOSPITAL, TEMPLE, TEXAS—Dr. Elmer Norval Carter, Huntington, W. Va.

PENSACOLA HOSPITAL, PENSACOLA, FLA.—Dr. Angel Rafael Cestero-Hernandez, Rio Piedras, Puerto Rico.

NORWOOD HOSPITAL, BIRMINGHAM, ALA.—Dr. Frank Alexander Dick, Ozone Park, N. Y.

EMANUEL HOSPITAL, PORTLAND, ORE.—Dr. Stanard Ricketts Gillespie, Huntington, W. Va.

BOSTON CITY HOSPITAL, BOSTON, MASS.—Dr. Lewis Tilghman Stoneburner, III, Richmond.

PRESBYTERIAN HOSPITAL, SAN JUAN, PUERTO RICO—Dr. Dolores Isabel Mendez-Esteves, Caguas, Puerto Rico.

CLINICA MIMIYA, SANTURCE, PUERTO RICO—Dr. Felix Alberto Rodriguez, Lares, Puerto Rico.

Others graduating in medicine were:

Dr. Quinton Edwin Cooke, Rich Square, N. C.
Dr. Sid Carlyss Odell, Appalachia.
Dr. Aaron Pushkin, Alexandria.
Dr. Herman Anthony Rich, Morgantown, W. Va.
Dr. Millard Kersey Underwood, Richmond.
Dr. William Lynn Wingfield, Ashland.

UNIVERSITY OF VIRGINIA, DEPARTMENT OF MEDICINE

The 113th commencement exercises of the University of Virginia were held from June 11th

through the 15th. Friday and Saturday were given over to the alumni. Besides many class reunions, there was a barbecue on Saturday, followed by a baseball game participated in by an alumni team, members of the graduating class, and varsity players. An informal dance was held that night.

On Sunday, the baccalaureate sermon was preached by Dr. Beverley D. Tucker, rector of St. Paul's Episcopal Church, Richmond. In the evening, an organ recital by Professor Harry Rogers Pratt was held in the McIntire amphitheatre.

President and Mrs. John Lloyd Newcomb entertained the graduates and alumni Monday afternoon at a reception at their home. In the evening, there was a Phi Beta Kappa initiation, followed by an address by John W. Wheeler-Bennett, eminent British historian and author.

On Tuesday afternoon, degrees were conferred upon approximately 425 students, 61 of whom received the degree of doctor of medicine. Mr. Edward R. Stetinius, Jr., chairman of the finance committee of the United States Steel Corporation, delivered the commencement address. A reception and the final ball followed these exercises.

The following are graduates of the medical school, with their hospital appointments:

UNIVERSITY OF VIRGINIA HOSPITAL, UNIVERSITY—Drs. McLemore Birdsong, Suffolk; Ray Edward Burger, Covington; Robert Owen Canada, Jr., Grottoes; Albert Richie Gillespie, Tazewell; Marion Kemper Humphries, Jr., Farmville; Alexander McCausland, Henderson, W. Va.; and Thornton Tayloe Perry, III, Charlestown, W. Va.

UNIVERSITY OF VIRGINIA, DEPARTMENT OF ANATOMY, UNIVERSITY—Dr. Wiley Roy Mason, Jr., Charlottesville.

ST. ELIZABETH'S HOSPITAL, RICHMOND—Dr. Samuel Norfleet Etheredge, Jr., Norfolk.

MEMORIAL HOSPITAL, RICHMOND—Dr. Charles Cabell Bailey, Charlottesville.

NORFOLK GENERAL HOSPITAL, NORFOLK—Drs. Edward Vernon Brush, Jr., Chatham; and Edwin Warner Vaughan, Jr., Norfolk.

ST. VINCENT'S HOSPITAL, NORFOLK—Dr. Joseph Nagle, Norfolk.

ROANOKE CITY HOSPITAL, ROANOKE—Dr. William Camp Matthews, University.

VIRGINIA MASON CLINIC, SEATTLE, WASH.—Drs. William Stephenson Cole, University; and Marion Lawrence White, Jr., Reedville.

UNITED STATES MARINE HOSPITAL, BALTIMORE, MD.—Drs. Eugene Willard Arnett, Jr., Danville; and James Eugene Hemphill, Petersburg.

UNION MEMORIAL HOSPITAL, BALTIMORE, MD.—Drs. Barnes Gillespie, Jr., Tazewell; and Rudolf Bolling Teusler, Tokyo, Japan.

BALTIMORE CITY HOSPITAL, BALTIMORE, MD.—Drs. Eleanor Mattingly Littlepage, Remington; and Dexter Davis, Inverness, Fla.

VANDERBILT UNIVERSITY HOSPITAL, NASHVILLE, TENN.—Dr. Harry Lee Archer, Waynesboro.

BARONESS ERLANGER HOSPITAL, CHATTANOOGA, TENN.—Dr. Joseph Thomas Phillips, Jr., Charlottesville.

PARK VIEW HOSPITAL, ROCKY MOUNT, N. C.—Dr. Herman Alphonso Cole, Richmond.

HOSPITAL OF THE PROTESTANT EPISCOPAL CHURCH, PHILADELPHIA, PA.—Dr. John Lippincott Guerrant, Callaway.

METHODIST EPISCOPAL HOSPITAL, PHILADELPHIA, PA.—Dr. Thomas Clement Furman, Greenville, S. C.

WOMAN'S HOSPITAL, PHILADELPHIA, PA.—Dr. Elizabeth Mickley Cover, Covington.

ALLEGHANY GENERAL HOSPITAL, PITTSBURGH, PA.—Dr. John K. Taggart, Jr., Charlotte, N. C.

PASSAVANT HOSPITAL, PITTSBURGH, PA.—Dr. Rawley Martin Shelton, Jr., Unionville.

ST. FRANCIS HOSPITAL, PITTSBURGH, PA.—Dr. Joseph Langhorn Yon, Charlottesville.

DUVAL COUNTY HOSPITAL, JACKSONVILLE, FLA.—Dr. Robert Humber Cox, Jr., Lynchburg.

ST. LUKE'S HOSPITAL, JACKSONVILLE, FLA.—Dr. George Oliver Emerson, Jr., Danville.

HARPER HOSPITAL, DETROIT, MICH.—Dr. John Custis Crawford, Alexandria.

HENRY FORD HOSPITAL, DETROIT, MICH.—Dr. Kenneth Boyd Grim, Staunton.

FRENCH HOSPITAL, NEW YORK, N. Y.—Dr. John Bland Hamilton, University.

NEW YORK HOSPITAL, NEW YORK, N. Y.—Drs. Victor Fray Marshall, Culpeper; and Robert Liston Bailey, Jr., Columbia, S. C.

NEW YORK POLYCLINIC MEDICAL SCHOOL AND HOSPITAL, NEW YORK, N. Y.—Dr. John Chapman Watson, Salem.

UNITED STATES MARINE HOSPITAL, STATEN ISLAND, N. Y.—Dr. Bothwell Graham, III, Clinton, S. C.

ST. JOHN'S HOSPITAL, BROOKLYN, N. Y.—Dr. Harry LeCato Smith, Jr., Charlottesville.

STRONG MEMORIAL HOSPITAL, ROCHESTER, N. Y.—Dr. John Ridley Seal, Charleston, W. Va.

C. & O. HOSPITAL, HUNTINGTON, W. VA.—Dr. Henry Hurt Hancock, Proffit.

ST. FRANCIS HOSPITAL, WILMINGTON, DEL.—Dr. Herman Laibstain, Berkley.

DELAWARE HOSPITAL, WILMINGTON, DEL.—Drs. Jesse Francis Richardson, Cape Charles; and Constance Anthony D'Alonzo, Wilmington, Del.

UNIVERSITY OF IOWA HOSPITAL, IOWA CITY, IA.—Dr. John Oscar Rydeen, Norfolk.

UNIVERSITY OF OKLAHOMA HOSPITAL, OKLAHOMA CITY, OKLA.—Drs. Irvine Saunders, Bedford; and Walter Spalding Morse, South Deerfield, Mass.

LAKESIDE HOSPITAL, CLEVELAND, O.—Dr. James John Griffitts, Jacksonville, Fla.

CINCINNATI GENERAL HOSPITAL, CINCINNATI, O.—Dr. Henry St. George Tucker, Jr., Richmond.

STARLING-LOVING UNIVERSITY HOSPITAL, COLUMBUS, O.—Dr. Esta Ross Allen, Salem, W. Va.

ELIZABETH GENERAL HOSPITAL, ELIZABETH, N. J.—Dr. Maurice Allen Chodosh, Carteret, N. J.

COOPER HOSPITAL, CAMDEN, N. J.—Dr. George Hartrauft Haley Garrison, New Castle, Del.

UNIVERSITY OF CALIFORNIA HOSPITAL, SAN FRANCISCO, CALIF.—Dr. Wylie Fackler Creel, San Francisco, Calif.

WALTER REED HOSPITAL, WASHINGTON, D. C.—Dr. William C. White, Scottsville.

EMERGENCY HOSPITAL, WASHINGTON, D. C.—Drs. Julius Fogel, Washington, D. C.; and Thomas Madden Foley, Jr., Washington, D. C.

ST. JOSEPH'S HOSPITAL, PROVIDENCE, R. I.—Dr. Stephen Joseph Fortunato, Wilmington, Del.

Dr. Isadore Samuel Zfass, Norfolk, was also a member of the graduating class.

Roanoke Meeting of State Society.

Roanoke doctors have arrangements well organized for the annual meeting of the Medical Society of Virginia in Roanoke, October 12-14. A number of reservations have already been made for commercial exhibits but the requests for scientific exhibits have been slow. Members, hospitals or groups who desire to present scientific exhibits at this meeting are asked to make reservations promptly that the committee may know how much space to reserve.

Rates at the various hotels are as follows:

Patrick Henry: Single rooms, $2.00 to $6.00; double, $4.00 to $8.00. Each room is equipped with radio and bath.

Ponce de Leon: Single rooms, $2.00 to $2.50; double, $3.50, or twin beds $4.00 to $5.00. Each room equipped with tub or shower.

Roanoke: Single rooms, $2.50 up; double, $4.00 up. Each room equipped with bath.

For those who prefer to be in private homes, there is also a list of places where rooms may be had.

In addition to the round tables on a variety of subjects, the Local Committee is arranging for three outstanding men from out of the State to speak on Tuesday afternoon. Following the afternoon of round tables on Wednesday, it is planned to have a subscription dinner for the full membership. These innovations merit a good attendance and we hope all members will mark the dates on their calendars and make every effort to attend.

American Medical Association.

The eighty-eighth annual session of the Association was held in Atlantic City, June 7-11, under the presidency of Dr. Charles Gordon Heyd of New York City. There was a registered attendance of over 9,500, and of this number nearly two hundred were from Virginia. The large number of scientific and technical exhibits and motion pictures added much to the interest of the scientific program. The entertainments were such as can only be enjoyed at Atlantic City.

Dr. J. H. J. Upham of Columbus, Ohio, succeeded to the presidency and Dr. Irvin Abell of Louisville, Ky., was named president-elect. San Francisco was selected as the 1938 place of meeting.

Dr. M. P. Rucker of Richmond, Va., for the past year chairman of the Section on Obstetrics, Gynecology and Abdominal Surgery, read his address as chairman on June 10th, before an audience of several thousand.

Two Virginians were named as officers in sections for the coming year: Dr. I. C. Riggin, State Health Commissioner, Richmond, as secretary of the Section on Preventive and Industrial Medicine and Public Health, and Dr. Robert V. Funsten of Charlottesville as secertary of the Section on Orthopedic Surgery.

Married.

Dr. William McKenzie Bickers and Miss Virginia Fitzpatrick, both of Richmond, Va., June 5.

Dr. Frederick Ralph Person of Williamsburg,

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Va., and Miss Dorothy Italena Speese of Roanoke, Va., June 12.

Dr. Harrison Fitzgerald Flippin, son of Dr. and Mrs. J. C. Flippin of the University of Virginia, and Miss Edith Quier of Reading, Pa., June 12. Dr. Flippin, who graduated from the University of Virginia in 1933, has since made his home in Philadelphia where he is connected with the University of Pennsylvania Hospital.

Dr. John W. Devine, Jr., of Lynchburg, Va., and Miss Clara Roberts of Forest Hill, Durham, N. C., June 30.

Dr. Howard Thompson Holden, class of '34, University of Virginia, now of Chattanooga, Tenn., and Miss Dorothy Rodes of "Rose Hill" near Crozet, Va., in June.

Dr. Charles Hampton Mauzy, Jr., class of '33, University of Virginia, and Miss Elizabeth Anne Thaxton, daughter of Dr. and Mrs. John F. Thaxton of Tye River, Va., June 19. Dr. Mauzy spent some time at the University of Virginia Hospital but is now resident physician on obstetrics at Gallinger Municipal Hospital in Washington, D. C.

Dr. James Eugene Hemphill, Petersburg, and Miss Mary Nancy Ray, Richmond, June 21st. Dr. Hemphill is a graduate of the University of Virginia, Department of Medicine, class of '37, and is serving an internship at the U. S. Marine Hospital, Baltimore.

State Health Department Personnel Notes.

Dr. S. D. Gardner, who for the past several months has been pursuing studies in the course of public health at Johns Hopkins University, has resumed his duties as Director of the Valley Health District with headquarters in Luray, Virginia.

Dr. William Grossman, who has received the Certificate in Public Health at Johns Hopkins University, has been appointed epidemiologist in the Department's bureau of communicable diseases.

Dr. Linwood Farley, for some time health officer with the Hanover County Health unit, has accepted the position as assistant health officer of the Valley Health District with headquarters in Luray.

Dr. H. B. Magill, Jr., recently with the Health unit in Northampton County, has succeeded Dr. Farley in Hanover County, with headquarters at Ashland.

Dr. J. N. Dudley, who has just completed a course at the School of Hygiene and Public Health of the Johns Hopkins University, has been named health officer of the Northampton County Health unit with headquarters at Eastville.

Dr. E. W. Dodd, Jr.,

Class of '36, Medical College of Virginia, who interned the past year at Jefferson Hospital, Roanoke, Va., is now at Gary, W. Va., where he is engaged in industrial practice.

Dr. Coleman to Head Department of Neurological Surgery at Both Virginia Medical Schools.

Dr. Claude C. Coleman was elected Clinical Professor of Neurological Surgery, of the University of Virginia, at the May meeting of the Board of Visitors. Dr. Coleman will direct the department with the assistance of Dr. W. Gayle Crutchfield and Dr. John M. Meredith, who were elected Associate and Assistant Professors.

Dr. Coleman will reside in Richmond where he is Professor of Neurological Surgery, Medical College of Virginia, a position he has held since 1924, when he organized the department. Dr. Crutchfield will likewise continue in his present position in the Medical College of Virginia and his association in private practice with Dr. Coleman. Dr. Meredith entered upon his duties at the University on July 1, and will live in Charlottesville.

The American College of Physicians

Will hold its twenty-second annual session in New York City, April 4-8, 1938, with headquarters at the Waldorf-Astoria Hotel.

Dr. James H. Means, of Boston, is president of the College and will have charge of the program of general scientific sessions. Dr. James Alex. Miller, of New York City, has been appointed general chairman of the session, and will be in charge of clinics and demonstrations in the hospitals and medical schools and of the program of round table discussions.

The West Virginia State Medical Association,

At its annual meeting the latter part of May, elected Dr. Charles W. Waddell of Fairmont as president. He will take office on January 1, 1938, succeeding Dr. W. S. Fulton of Wheeling. Dr. H. H. Haynes of Clarksburg and Dr. A. A. Shawkey of Charleston were elected vice-presidents, and Dr. T. M. Barber of Charleston was re-elected treasurer.

Mr. Joe W. Savage of Charleston is executive secretary. Dr. Walter E. Vest of Huntington was selected as editor of the State journal, and White Sulphur Springs was named as the 1938 meeting place.

Appointments in U. S. Public Health Service.

Dr. Roy P. Sandidge, class of '14, University of Virginia, has been promoted and commissioned as Senior Surgeon in the Regular Corps of the Service.

Dr. Romeo J. Gentile, class of '35, University of Virginia, has been appointed and commissioned as Assistant Surgeon in the Regular Corps of the Service.

The American Gynecological Society

Held its sixty-second annual meeting from May 31st through June 2nd at New Ocean House, Swampscott, Mass., under the presidency of Dr. Fred J. Taussig of St. Louis. New officers elected at this time are: President, Dr. N. Sproat Heaney of Chicago; and vice-presidents, Dr. Norris W. Vaux of Philadelphia and Dr. Frederick C. Irving of Boston. Dr. William C. Danforth of Evanston, Ill., and Dr. Richard W. Te Linde of Baltimore, Md., were re-elected treasurer and secretary, respectively.

Dr. James W. Tankard,

Class of '33, University of Pennsylvania, at one time with the C. C. Corps in Virginia but who has recently had special training in the Buffalo (N. Y.) General Hospital, is now located at Franktown, Va.

News from the Medical College of Virginia.

The twenty-fourth volume of "X-ray", the yearbook published by the student body, was dedicated to Mr. J. R. McCauley, secretary-treasurer of the College, in recognition of his thirty-five years of service and his marked devotion to all its varied interests.

Lieutenant-Colonel Edwin B. Maynard, Medical Corps, U. S. A., will assume his duties on September 30th as professor of Military Science and Tactics in the Medical Reserve Officers' Training Corps unit of the College. He was detailed also as instructor of the 305th medical regiment of the organized reserve. Dr. Maynard is a native of Virginia and received his medical degree from the University of Virginia in 1908.

The college has under construction its first dormitory for men at a cost of $315,000.00. This building will house the house staff of the college hospitals, approximately fifty and the senior medical class, its total capacity being one hundred forty-seven. The building will be located in the hospital center and will contain in addition to the typical dormitory rooms a cafeteria, private dining rooms, an assembly room seating one hundred fifty, barber shop, and other facilities. The building will be dedicated next spring, probably during the Centennial Celebration of the college.

News from University of Virginia, Department of Medicine.

Dr. Dudley C. Smith spoke on Modern Methods in the Control of Syphilis at the scientific session of the Ohio County Medical Society in Wheeling, West Virginia on April 30th.

On May 11th, Dr. H. B. Mulholland addressed the Medical Society of Northern Virginia, meeting at Woodstock, Virginia, on the subject of New Advances in Therapy.

The Virginia State Section of the American College of Physicians met at the University Hospital on May 21st. The program included the following speakers: Dr. A. D. Hart, Dr. H. B. Mulholland, Dr. J. Edwin Wood, Dr. W. W. Waddell and Dr. D. C. Wilson.

Dr. H. B. Mulholland addressed the New York City group of University of Virginia Medical Alumni at their meeting on May 28th.

On May 24th, Dr. J. C. Flippin spoke before the Staff of St. Elizabeth's Hospital in Richmond on the subject of Acute Aseptic Meningitis.

On June 3rd, Dr. Robert V. Funsten addressed the American Orthopedic Association, meeting at Lincoln, Nebraska, on Sideswipe Dislocations of the Hip.

On June 4th, Dr. Fletcher D. Woodward read a paper on Nasopharyngeal Abscesses and Cysts before the American Laryngological, Rhinological and Otological Society at the meeting in Atlantic City.

Dr. J. Edwin Wood and Dr. Harold Nix read a joint paper on Hypertension and Pregnancy before the Section on Medicine of the American Medical Association at the meeting in Atlantic City on June 9th.

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At the Final Exercises on June 15th sixty-one students from the Department of Medicine were graduated with the Degree of Doctor of Medicine.

News from Jefferson Medical College of Philadelphia.

The one hundred and twelfth commencement was held on June 4th, with the graduating class numbering 138. This brings the total number of graduates to 16,313. The annual alumni dinner was held on June 3rd with more than 500 alumni in attendance. Among the speakers at this dinner was Dr. James K. Hall, Richmond, representing the class of 1904. Alumni day and ex-internes' day clinics were held on the 2nd and 3rd in the clinical amphitheatre of the Hospital.

Dr. Horace James Williams was elected professor of otology at a recent meeting of the Board of Trustees. He graduated from the College in 1912, and is otologist and laryngologist to the Germantown Dispensary and Hospital, the Lutheran Orphanage in Germantown, the Philadelphia Hospital for Contagious Diseases, and the Memorial Hospital. He is the author of numerous articles on diseases of the ear, nose and throat.

Dr. P. Brooke Bland, professor of obstetrics at the College, was elected emeritus professor of obstetrics. He was graduated with honors from the College in 1901. He served as resident physician following his graduation and held positions in the department of gynecology until 1925, at which time he was appointed as head of the department of obstetrics. Dr. Bland is the author of several books and a number of papers dealing with obstetrics and gynecology.

Dr. Norris Wistar Vaux was appointed to succeed Dr. Bland as professor of obstetrics. He is a graduate of the University of Pennsylvania and is obstetrician and gynecologist in chief to the Pennsylvania Hospital. He has held positions in Jefferson Medical College since 1908.

News Notes from Duke University School of Medicine.

On May 17th, Dr. W. H. Stoner, of the Burroughs Wellcome and Company Experimental Research Laboratories lectured to the staff and students on Sulfanilamide Therapy, and on May 31st Dr. Jonas S. Friedenwald of the Wilmer Institute of Ophthalmology, The Johns Hopkins Hospital, lectured on Interpretation of Retinal Changes.

At the graduating exercises of Duke University, held June 7th, forty-eight students received the degree of Doctor of Medicine, and six the degree of Bachelor of Science in Medicine.

Dr. David H. Andrew,

Located for a time at Wytheville, Va., before going to Baltimore to study at the School of Hygiene and Public Health of Johns Hopkins University, has completed his course and will be connected with the Baltimore City Health Department, effective July 1, 1937.

The Medical Library Association

Held its annual meeting in Richmond, May 23-26, with representatives throughout the United States and Canada in attendance. Speakers at the various sessions included Mayor J. Fulmer Bright, Drs. W. T. Sanger, E. C. L. Miller, M. P. Rucker, and Harry J. Warthen, all of Richmond, Dr. Joseph Miller of Thomas, W. Va., and Colonel C. F. Mayer of the surgeon-general's library in Washington. Dr. W. S. Francis, president of the association, at the annual banquet gave a very interesting address on Sir William S. Osler.

Mr. James F. Ballard, of the Boston Medical Library, was elected president of the Association, and Miss Florence McRae, of the Medical College of Virginia Library, Richmond, was made a member of the executive committee.

Dr. J. Bernard Jones,

Who graduated from the Medical College of Virginia in 1933 and interned the following year at the Norfolk (Va.) Protestant Hospital, is now located in Culpeper, Va., where he is associated with Dr. D. W. Kelly in the general practice of medicine. For the two years before locating in Culpeper, Dr. Jones served as Medical Officer of the Medical Corps Reserve with the Civilian Conservation Corps. At the time of resigning from the Service, he was District Surgeon with headquarters at Towson, Md.

Dr. Walter E. Vermilya,

Class of '36, Medical College of Virginia, who interned for the past year at Rex Hospital, Raleigh,

N. C., has located at Big Rock, Va., where he will be engaged in general practice.

Dr. E. W. Dodd,

Buchanan, Va., was re-elected as one of the councilmen of that place at the recent elections.

Dr. E. L. Kendig,

Who graduated from the Medical College of Virginia in 1936 and has since been interning at the College hospitals in Richmond, is now at Babies' Hospital, Wrightsville Sound, Wilmington, N. C.

Dr. Joseph E. Gladstone, Jr.,

Class of '34, University of Virginia, who served a rotating internship at St. Vincent's Hospital, Norfolk, Va., the following year, and later was resident in obstetrics and gynecology at Columbia Hospital for Women in Washington, D. C., has located for general practice at his former home, Exmore, Va.

Dr. Julian Ruffin,

Associate professor of Medicine at Duke University, Durham, N. C., was the guest speaker on President's Night at the Norfolk County Medical Society on May 31st. His subject was "The Present Status of Pellagra." Following the meeting, Dr. Walter B. Martin, President of the Society, honored Dr. Ruffin with an informal reception at the Town Club, to which were invited all members of the Society.

The Medical Society of the State of North Carolina,

At its annual meeting in May, inducted Dr. Wingate M. Johnson of Winston-Salem, as president, and elected Dr. James B. Sidbury of Wilmington as president-elect, and Dr. Thomas M. W. Long of Roanoke Rapids as secretary. The latter succeeded Dr. L. B. McBrayer who retired after a service of many years. The next annual meeting will be at Pinehurst in May 1938.

Dr. J. M. Hurt

Has been elected president of the Blackstone (Va.) Rotary Club and was installed on June 21st.

Dr. M. H. Mund

Announces his removal from Covington, Va., to 28 Church Street, Martinsville, Va.

Dr. L. Floyd Hobbs,

Formerly of Jewell Ridge, Va., is now located for private practice at 403 Doniphan Building, Alexandria, Va.

Dr. E. T. Terrell,

Williamsburg, Va., was recently named to the board of directors of the Lions' Club of Williamsburg, Va., for the coming year.

Dr. Frank P. Coleman,

Class of '31, Medical College of Virginia, who has just completed a residency in general surgery at the University of Michigan Hospital in Ann Arbor, has accepted the appointment as resident in thoracic surgery at the Cleveland, Ohio, City Hospital.

Dr. Robert P. Stock,

Formerly of Stonega, Va., announces that he is now located at Childersburg, Ala.

The Leslie Dana Gold Medal,

Awarded annually for outstanding achievements in the prevention of blindness and the conservation of vision, was presented this year to Mrs. Winifred Hathaway, of New York City, Associate Director of the National Society for the Prevention of Blindness. She is the second woman to be accorded this honor.

Dr. and Mrs. William Franklin Grigg,

Richmond, Va., celebrated the twenty-fifth anniversary of their marriage on the evening of June 5th, at which time many friends gathered to extend their congratulations and good wishes.

Dr. Sidney Trattner,

Richmond, Va., was named a member of the board of directors of the Richmond First Club at its meeting the middle of June.

Dr. Charles W. Warren,

Who graduated from the Medical College of Virginia in 1936 and has just completed a rotating internship at Garfield Memorial Hospital, Washington, D. C., has located at Upperville, Va., where he will be engaged in the general practice of medicine.

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Dr. Waldon M. Wattles

Has accepted the position of resident physician at the Southside Hospital, Farmville, Va. He is a resident of Battle Creek, Mich., and received his degree in medicine from the Vanderbilt University, Nashville, Tenn. Dr. Wattles recently served an internship at the Children's Hospital in Montreal, Canada.

Wanted—

Contract or assistantship practice. Gentile, 41, class "A", married, good habits, hard worker, good mixer, will go anywhere. Address "XX", care this JOURNAL. *(Adv.)*

For Sale—

Bargain—Eye, Ear, Nose and Throat Instruments. Excellent condition. Equipment includes suction and pressure apparatus, complete set of test lenses, etc. Owned by the late Dr. Booker Lee. For information, write Mrs. Nellie L. Lee, 210 Berkley Avenue, Roanoke, Va. *(Adv.)*

For Sale or Rent—

A desirable modern home and office of a deceased doctor who had a large and lucrative practice in a prosperous community in the Valley of Virginia. There is no doctor in this community and there is a splendid opening for an active practitioner. Inquiries invited. Address H. O'B. Cooper, P. O. Box 1808, Washington, D. C. *(Adv.)*

Position Wanted—

By registered technician and typist, trained in secretarial and office work. Best references. Address "Technician", care this JOURNAL, 1200 East Clay Street, Richmond, Va. *(Adv.)*

Wanted—

By 30-bed hospital located in Southwest Virginia, young graduate in medicine, licensed in Virginia, to help with general medical, surgical and obstetrical services. Position pays maintenance and $100.00 monthly to start. References required, Address "Southwest Virginia", care this JOURNAL, 1200 East Clay Street, Richmond, Va. *(Adv.)*

Obituary Record

Dr. Samuel Downing,

Prominent physician of Newport News, Va., died in a Richmond hospital on June 14th, after a long illness. He was a native of Lancaster County, Va., and forty-four years of age. Dr. Downing graduated from the Medical College of Virginia, class of '14. He was formerly health officer of Newport News and in more recent years had represented the U. S. Public Health Service and the Veterans' Administration in his district. Dr. Downing was a member of several medical organizations, among them being the Medical Society of Virginia. A son survives him.

Dr. Hugh Hodge Hill

Died at his home in Locust Dale, Va., June 15th. He was seventy-nine years of age and graduated from the University of Pennsylvania, School of Medicine, in 1895. Dr. Hill was for a number of years resident physician at Mountain Lake, Va. He had been a member of the Medical Society of Virginia since 1900.

Dr. Booker Lee,

Pulaski, Va., died April 4th, of heart disease. He was forty-nine years of age and a graduate of the Medical College of Virginia in 1909. Dr. Lee was a member of the Medical Society of Virginia. His wife and a daughter survive him.

Dr. Frank Wandling Hornbaker,

Occoquan, Va., died June 11th, at the age of sixty-two. He was a graduate of the former University College of Medicine, Richmond, in 1900, and had been a member of the Medical Society of Virginia for about thirty years.

Dr. Alonzo Leonidas Winfield,

Of Richmond, Va., died June 22nd. He was a native of California and sixty-one years of age. Dr. Winfield graduated from the Medical College of Virginia in 1911, and was a member of the Medical Society of Virginia. He was for many years prominent in Masonic circles, having served as past master in two lodges. His wife survives him.

Dr. Stafford G. Cooke,

Yorktown, Va., died suddenly March 2nd. He graduated from the College of Physicians and Surgeons, Baltimore, in 1886. Dr. Cooke was for many years supervisor in Nelson district of York County and a member of the school board.

Dr. Ben P. Sanders,

Chilhowie, Va., died February 6th, at the age of eighty-one. He was a graduate of the Medical College of Virginia in 1880.